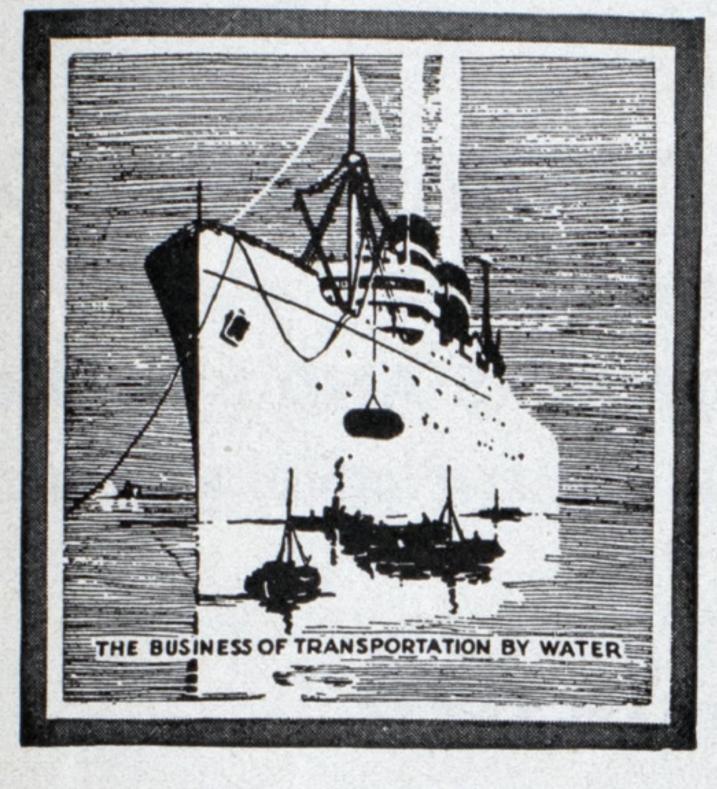
# Marine Review

The National Publication Covering the Business of Transportation by Water

CLEVELAND

FOUNDED 1878

**NEW YORK** 



Published monthly by The Penton Publishing Co. Cleveland, Ohio, U. S. A.

Cleveland Office, Penton Bldg.
A. H. Jansson, Editor
H. O. Taylor, Advertising Manager

Chicago Office, 1347 Peoples Gas Bldg. L. C. Pelott Fred B. Pletcher

New York Office, 220 Broadway,
Joseph Fuller, Eastern Manager
E. C. Kreutzberg
B. K. Price
H. R. Simonds

Pittsburgh Office, 507-8 Oliver Bldg S. H. Jasper W. G. Gude

San Francisco Office, 681 Market St. N. C. Nourse

Washington, D. C. Office, 1020 National Press Building L. M. Lamm

London Office, Caxton Ho Westminster, S. W. 1 Vincent Delport

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Subscription United States and its possessions, \$3 per year; Canada \$4.00; Great Britain and other Foreign Countries, £1:0:0. Single copies 35 cents. Back numbers over three months 50 cents. Cable addresses: Penton, Cleveland, and Irotrapen, London.

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### « EDITORIAL »

## Publicity Needed to Increase Use of American Ships

N THE merchant marine acts of 1920 and 1928 the United States has laid down a comprehensive policy of government encouragement of a privately owned and operated American merchant marine. Success must always depend on a sound plan and intelligent execution. Some years have now passed since the policy or plan laid down became effective. It is clear from an unbiased analysis of the results up to the present time, that both the plan and its execution have been even more successful than anticipated. The results are quite definite. Our commerce and communications in strategic trade routes are being protected.

The post office department has awarded no less than 44 mail contracts on as many different routes in the foreign trade of the United States. These awards mean that any shipper can depend on regular scheduled sailings of American vessels. It is fair to assume that in the execution of the plan the shipping board with access to complete information has recommended only competent and dependable operators. It would be too much to expect that all of these operators will found substantial successful lines. It is an excellent beginning, however, and the same vigorous initiative shown by the post office department and the shipping board, in helping to place all of these services on a solid footing, should be continued until every trade route between the United States and any foreign port with which we are now trading or where there are possibilities of trade, has a dependable American flag service.

A wise government policy and a vigorous and intelligent execution is evident in the results already attained. A program of ship-building has been and is under way producing specific ships especially adapted for these services. This program will continue throughout the entire ten-year period of the terms of the mail contracts. It is obviously the object of the shipping board and post office department

in putting into effect the government's merchant marine policy to build up a properly equipped, efficiently managed American overseas services to all parts of the world, wherever our interests at present or in the future may warrant. Can any American in any part of the country be indifferent to such a constructive program?

It would have been remarkable if the policy laid down had been so comprehensive that it covered every possible contingency. And it has been found that certain additional measures should be taken to round out the program. One of the first omissions that the practical execution of the plan now makes apparent is the need of supplementing the services already established with cargo liner services.

In recent years the movement of freight by water, just as on the railroads ashore, has been speeded up. Other nations have fully recognized this trend and have met it by building modern cargo liners of 13 to 15 knots in speed to replace the older 10-knot tramp. These fast modern freighters naturally have the first call on most of the freight offered where speed in delivery is an item of great importance. A well conceived plan should therefore be worked out by which similar encouragement may be given to the establishment of cargo liner services, so that the American operator will be in a position to offer the same quality of vessel and promptness of delivery as any foreign competitor.

It is thoroughly recognized in modern business that efficient methods of selling must be adopted for the permanent success of any enterprise. What good is an excellent service if those who need such a service are not told about it? To be sure, the shipping board through its commissioners has done much in an attempt to popularize the use of American ships. It has probably done about all that it can do with the means at hand. But the means at hand have been insufficient and the extent of such means indicates a lack of appreciation of the value of the right kind of publicity.

The American public and every industry, small and large, should be told exactly how its

needs can be served by established American lines. A campaign of publicity should be provided for. Such a campaign should have the benefit of direction by the most qualified agencies for this purpose. Only recently Chairman O'Connor said that what the American merchant marine needed now is a different attitude of mind on the part of all Americans in regard to patronizing their own ships, rather than more and better ships. It is this attitude of mind that a properly conducted, bold and comprehensive publicity plan would affect favorably.

The third and also an important factor in setting our merchant marine affairs in order, is to get rid of the laid up shipping board fleet. Here again the chairman of the shipping board has had the right idea and he is directly responsible for the scrapping which has already taken place. What is meant now is to get rid of the remaining ships in layup in short order and with few exceptions. These vessels are already obsolescent and many of them are no doubt showing marked signs of deterioration. As long as they remain, however, they will exert an altogether unnecessary influence which is nothing more or less than a threat against all established steamship services and against the ordering of new properly designed up to date ships definitely suitable to the service intended.

Much good would result if these three things were done.

- 1. To extend government aid and encouragement in the building of first class high speed modern freighters.
- 2. To inaugurate a practical well-conceived comprehensive plan of national publicity to let American industries and the public know how they can now be served by ships flying the American flag.
- 3. A drastic program of scrapping of practically all shipping board vessels now in layup.

#### Build the St. Lawrence Waterway

and waterways has gone on with unabated intensity. In the meantime the public is vitally interested in a carefully ordered steady improvement of transportation means. Certainly nothing should be done to impair existing means of transportation by any action harmful to efficient and economical service rendered by any railroad. Economically sound waterways can have no such effect and opposition on the part of any railroad can only be based on a limited outlook of selfish interest. In a recent address, Elisha Lee, vice president

of the Pennsylvania railroad, made the statement that the railroads do not have nor could they properly have any objection to waterways that are economically sound.

On this basis no opposition should be expected in the prompt formulation of an agreement between Canada and the United States to carry out the plan to complete the canalization of the St. Lawrence from above Montreal to Lake Ontario so that ocean ships of dimensions limited to the transit of the new Welland canal could pass from the Atlantic to the Great Lakes. The useful dimensions of the locks of the new Welland canal are 820 feet in length, 79 feet in width, and the sill depth is 30 feet. Such a waterway would give direct access to the sea during seven and one half to eight months of the year and it has been estimated would not cost much over \$300,000,000.

Every effort should be made to facilitate these negotiations so that such a waterway can become an accomplished fact within the next six years. The power generated in this project would ultimately pay for it. The best interests of the people of both countries demand the building of such a waterway in the near future. It is bound to come and the ports on the Great Lakes should plan now to undertake the development needed in order to be ready to take advantage of this direct access to the sea which cannot be long deferred.

#### Naval Architects and Marine Engineers

THE thirty-ninth annual meeting of the Society of Naval Architects and Marine Engineers to be held in New York Nov. 19 and 20, brings to mind the unique and valuable service rendered the marine industry by this society. Throughout the years it has served as a forum for exchange of ideas and experience in the design, building and operation of ships. No industry can hope to advance without co-operation in knowledge and experience.

The society is lending its active support to the advanced training of young men in the science of naval architecture and marine engineering. In its transactions each year are published from 12 to 14 papers on many varied phases of marine engineering and ship operation. These papers are a valuable source of information. The society should be supported by everyone in the marine industry who has the interest of the advancement of the industry at heart. Three classes of membership are open, members, associates and juniors. Action on applicants for membership will be taken at the coming meeting in November.

## Age of American Merchant Vessels

### Analysis Shows Need of Replacements

By A. H. Jansson and E. C. Powers

HAT are the prospects for American shipbuilding in the immediate years to come? This is a question of great importance to steamship owners and operators and to the nation at large as well as to our established shipbuilding plants. To undertake its answer may seem a bold venture in prophecy. A study of the situation, however, brings out certain facts with which an approach to the answer may be made.

In the first place a definite building program is entailed in the remaining vessels, new and reconditioned, called for in the 44 mail contracts awarded to American operators by the postoffice department for specified services in foreign trade. If these mail contracts are continued in force during the ten-year period from date of award, and there is no reason to think that they will not be, the number and characteristics of the new and reconditioned vessels required and the time in which they must be laid down can be determined.

An estimate based on an actual count indicates that the mail contracts now in force, in addition to orders already placed, will call for the building of approximately 60 new vessels of about 500,000 gross tons to cost in the neighborhood of \$180,000,000. Furthermore there will also be a considerable volume of elaborate reconditioning of existing vessels.

It is also possible to determine the number, charac-

teristics and approximate cost of completing naval ships now building and appropriated for as of July 1, 1931. As a matter of fact there are 22 vessels all to be completed by the end of the fiscal year 1934 at a total estimated cost of \$173,590,000. What is not so easy is to estimate what additional naval shipbuilding congress will approve beginning with the coming session, as a program to be spread over the remaining five and one-half years before the London naval treaty ends, Dec. 31, 1936. Unless a substantial program in naval shipbuilding in the categories permitted under the treaty is undertaken, we shall, as Senator David A. Reed, one of the delegates to the London treaty of 1930 has said, have no standing at the next naval conference. If wisdom prevails in the councils of our government a substantial additional program of naval shipbuilding will be undertaken promptly.

The Navy league of the United States, in a carefully prepared study of naval requirements under the treaty, proposes that in addition to completing the ships building and appropriated for as of July 1, 1931, congress should make the necessary appropriations for the fiscal years 1932 and 1936 inclusive and for the first six months of the fiscal year 1937 for replacing ships now built after they become over age but before the end of the treaty.

(Continued on Page 18)

#### Number and Gross Tonnage of American Merchant Vessels by Categories—Now in Service

According to Age from 1 to 40 Years—1000 Gross Tons and Over

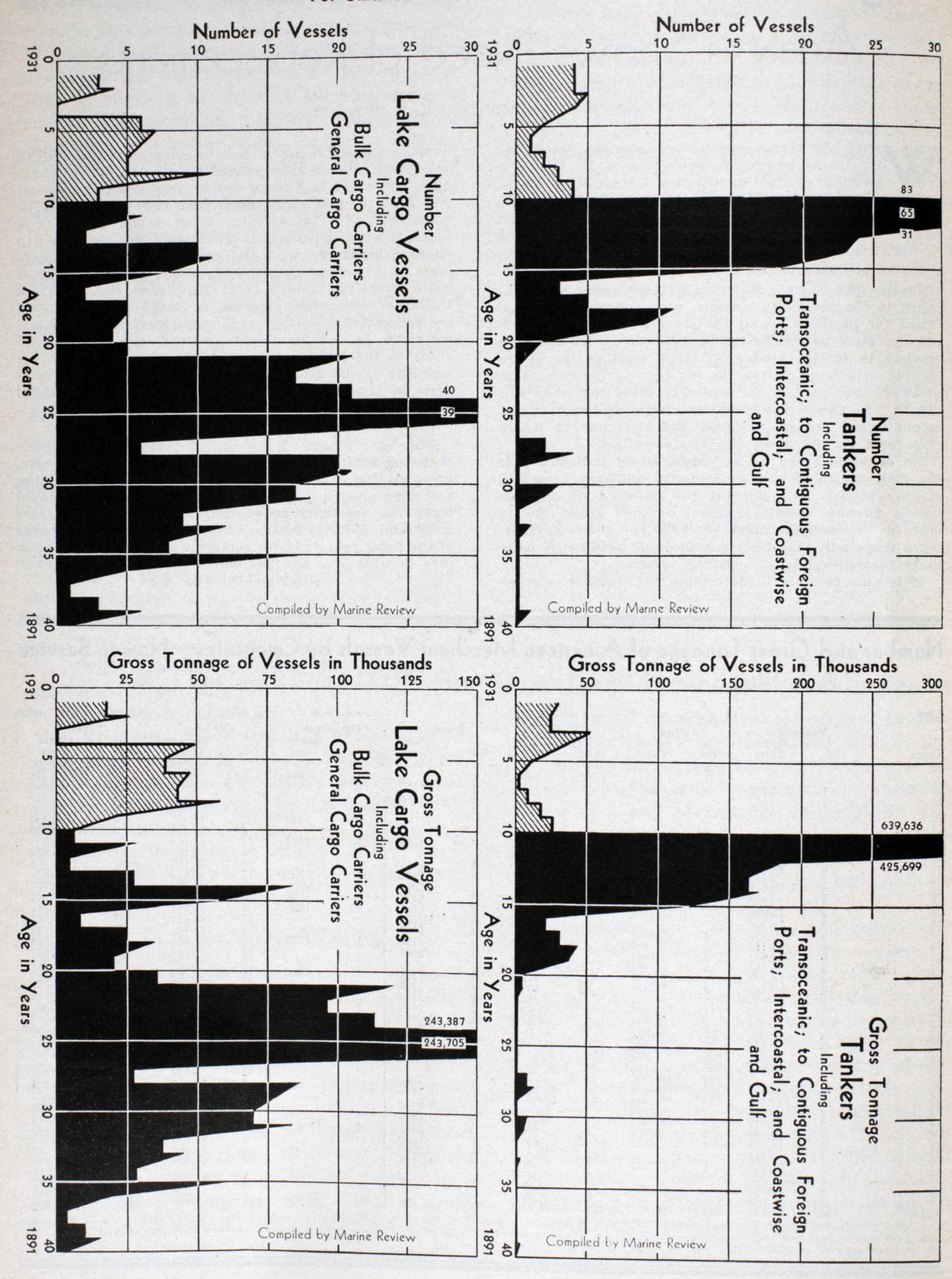
Age			Осе	an V	ess	e 1 s			L	ake	Ves	sels	Ocea	n and Lake
	Pa	ssenger		Cargo	T	ankers	F	erries	Pas	senger		Cargo		Total
In Years	No.	Gross	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons	No.	Tons	No.	Gross Tons	No.	Gross Tons
40			4	11,705			3	3890			1	2787	8	18,382
39			3	7789	1	2450			1	1304	6	14,976	11	26,519
38	1	7270	2	4317			1	1129	4	7939	3	9931	11	30,586
37	1	1661		1740			1	1766			- 5	3092 17,953	6	6519 19,501
35			1	1548					1	2940	17	59,913	18	62,853
34			1	1741	and the						8	28,231	9	29,972
33	5	9911	2	2599	1	2551	1	1883	1	2498	12	45,015	22	64,457
32	7	34,384	7	25,528					1	2427	9	37,597	24	99,936
31	9	45,611	3	12,952	2	4992	1	1954		17/0	18	83,167	33	148,676
30	2	6869	9	31,331	3	8531	6	7032	1 2	1762	17 21	69,154 77,103	38	124,679 121,288
29	3	6551	6	26,604		11 040	1 3	1016 4472	2	10,014 8648	20	86,413	37	156,931
27	3	32,787	8	12.763 29,353	2	11,848 8355	5	6564	i	1286	6	27,477	24	94,011
26	2	20,976 23,302	0	47,333	-	0333	10	15,106			25	148,434	37	186,842
25	3	10,159	4	14,688			4	5161			39	243,705	50	273,713
24	8	48,157	6	25,204			1	1138	1	4568	40	243,387	56	322.454
23	9	50,934	2	8308			1	2662			21	113,045 96,329	33	174,949 136,472
22	8	36,354	1	3789		4711		1351	2	6955	21	119,783	41	204,076
20	4	16,159	12	55,117	1	4711 4426	1	1238		0,33	5	36,002	21	90,753
19	0	20,761	11	28,326 49,895	9	36,523	2	3870	2	9122	4	20,854	30	129,594
18	7	9330 49,906	ii	52,839	11	42,697	2	3636	2	8635	5	34,596	38	192,309
17	2	68,313	7	38,623	5	30,222	6	13,080	1	2662	5	25,753	26 20	178,653
16	4	20,056	10	37,702	3	21,191	1	2406			0	8594 57,317	52	89,949 272,642
15	1	6063	25	87.952	18	121,310					11	82,838	60	358,228
12	4	34,791	*22	*72,479	23	168,120 163,791					10	27,633	95	371,198
12	5	26,188	*56	*153,586 *437,908	24 31	186,293					2	4639	155	628,840
11		46,459	*122 *100	*366,074	65	425.699	1	2639			6	27,860	177	868,731
10	18	232,314	*19	*84.988	83	639,636					5	6240	125	963,178
9	4	49,449	9	65.110	4	25,926	2	3564			11	22,600 57,619	22	166,649 114,412
8	5	22,975	3	11,943	3	16,787	3	5088 5857	2	15,478	- 5	43,028	19	100,196
	5	17,168	2	10,964	2	7701	1	1389		13,270	6	47,076	12	74,127
§	3	17,678	1	6767	1	1217	i	2089			7	38,680	- 11	56,879
4	1	5945		5043	4	31,727	7	16,490			6	49,205	24	148,710
3	9	46,245 54,501	1	3043	5	51,254			1			25 472	10	105.755 84,002
2	4	32,766			4	23,734	1	2029			4 2	25,473 17,429	9	64,148
1	2	17,638			4	29.081	70	119 400	25	86,238	415	2,160,928	1465	7,361,769
Totals	158	1,129,631	480	1,785,535	317	2,080,938	70	118,499	- D	d corgo wa	Control of the Contro			.339,822 gross

Note: \*Adjusted figures: For the five years 1917 to 1921 inclusive (ages 14 to 10) Shipping Board cargo vessels in lay up (243 vessels of 1.339,822 gross tons) have been omitted in proportion to the total number for each of these years. Only an immediate emergency could draw them back into active service. They

are destined soon to become scrap.

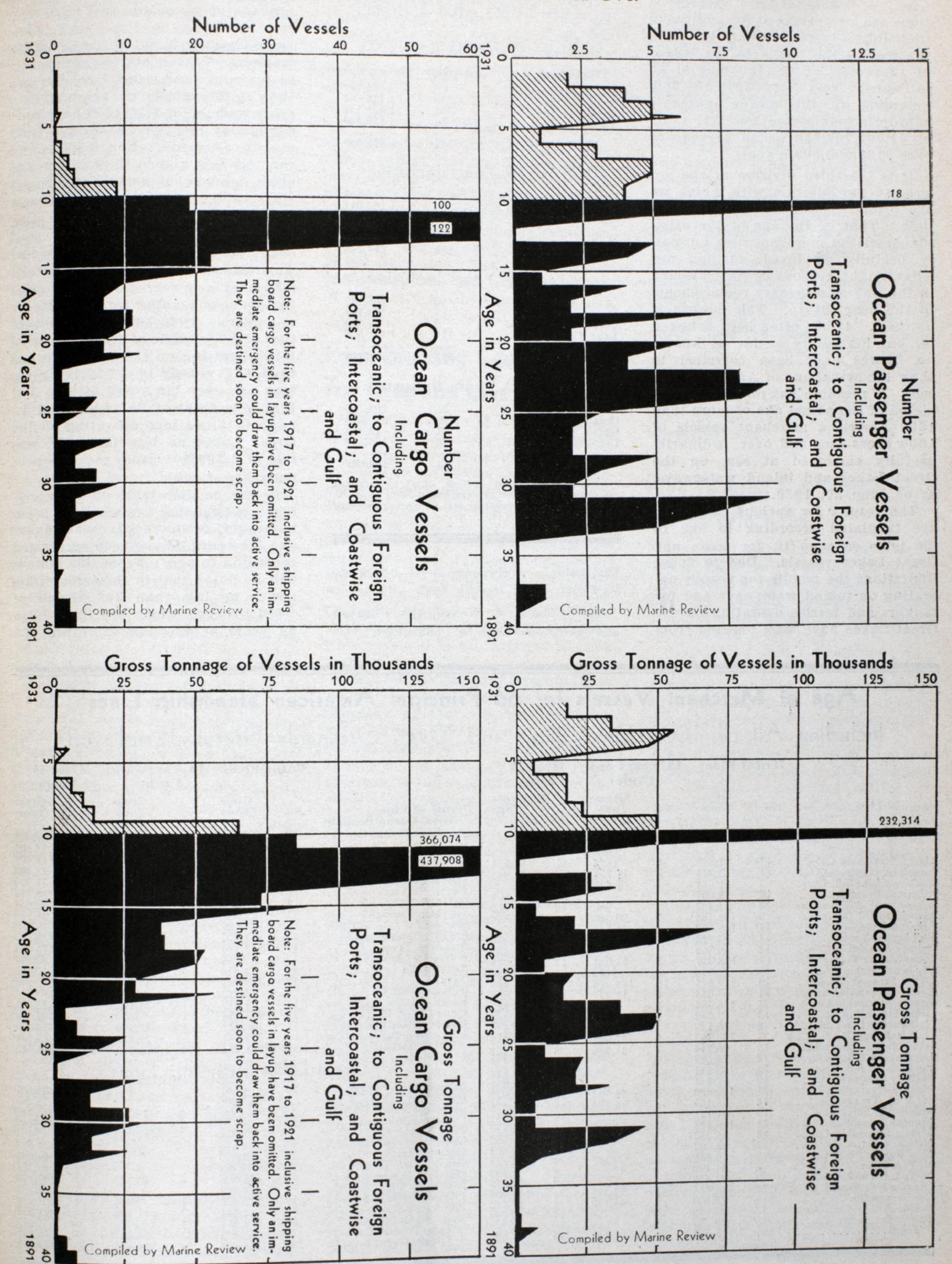
### Diagrams Showing Age of American Merchant Vessels

For Units of 1000 Gross Tons and Over



#### Diagrams Showing Age of American Merchant Vessels

For Units of 1000 Gross Tons and Over



This calls for the building of 128 vessels in various categories, totaling 221,000 tons at an estimated cost of \$619,162,750. Appropriations are also proposed for additional up-building to reach treaty levels by the end of the treaty to the extent of 12 vessels of 124,400 tons at an estimated cost of \$210,950,000. Summing up, this means aggregate appropriations before Dec. 31, 1936, of \$1,003,702,750 or an average of over \$182,000,000 a year.

It is the third division of the answer to the question with which we are primarily concerned in this article. That is, the age of the existing American merchant fleet normally usefully employed, to find out what might reasonably be expected in the way of necessary replacements in the near future. This subject is not new. It has often been referred to, but heretofore as far as known no figures have been compiled to show the actual age of American vessels. A research has now been completed of the actual age of more than 1600 American merchant vessels of 1000 gross tons and over, ordinarily usefully employed at sea, on the Great Lakes and inland waterways, as of June 30, 1930.

The results for various categories are tabulated according to age in the table on page 15, for ocean and Great Lakes vessels. Due to space limitations the results for vessels operating on inland waterways and for tankers and ferries operating on the Great Lakes have been omitted from

#### Age of American Vessels

Ten Years and Older 10 to 14 Years Inclusive

Category	Number	Gross Tons
Ocean Cargo Ocean Tanker Lake Cargo	315 255	604,117 1,214,862 1,821,131 450,320
Total	716	4,090,430

#### 15 to 19 Years Inclusive

Ocean Passenger Ocean Cargo Ocean Tanker Lake Cargo	16 64 46 24	153,668 267,011 251,943 147,114
Total	150	819,736

#### 20 to 29 Years Inclusive

Total	323	1,691,310
Lake Cargo	215	1,191,678
Ocean Tanker	9	29,340
Ocean Cargo	49	204,152
Ocean Passenger	50	266,140

#### 30 to 40 Years Inclusive

Total	134	499.087
Lake Cargo	70	275,347
Ocean Cargo Ocean Tanker	32	18,524
Ocean Passenger	25	105,706 99,510

Note: This table applies only to existing merchant vessels usefully employed as of June 30, 1930 of 1000 gross tons and over. Figures tabulated from table on page 15.

the table. Reference will be made to these later in the text.

Going back 40 years, the number and gross tonnage of passenger ves-

sels, freighters, tankers and ferries, operating in coastal waters and on the high seas have been tabulated for each year. The number and gross tonnage of passenger and cargo vessels operating on the Great Lakes have also been tabulated in a similar manner. Taking all categories listed for ocean and Great Lakes no less than 1465 vessels of an aggregate gross tonnage of 7,361,769 have been completely identified as to age from one to 40 years. For instance we can tell at a glance the number and gross tonnage of vessels in the various categories at any selected age.

In the large table on this page, number and gross tonnage of merchant vessels for 66 of the principal American steamship lines have been tabulated and segregated for vessels ten years and under in age and over ten years. It is significant to note that of 860 vessels of 4,941,652 gross tons operating on the oceans no less than 681 vessels of 3,623,442 gross tons are over ten years of age. And that of a total of 283 vessels of 1,-544,648 gross tons operating on the Great Lakes no less than 258 vessels of 1,339,601 gross tons are over ten years of age.

In the smaller table on this page, four outstanding categories, ocean passenger, ocean cargo, ocean tanker and lake cargo, have been segregated according to age. From this table it will be noted that in these four categories no less than 323 vessels of 1,691,310 gross tons are from 20 to 29 years of age and there are 134

#### Age of Merchant Vessels for 66 Principal American Steamship Lines

Including All of 1000 Gross Tons and Over, Ordinarily Usefully Employed

	Tota	al Fleet		ars and	6 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M - 5 M -	ears		Tota	al Fleet		ears and nder		er 10
Name of Line	No.	Gross Tons	No.	Gross Tons	No.	Gross	Name of Line Total Ocean Brought	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
00	cean	Steamsh	nip Li	ines			Forward	536		77	637,945	459	2,277,608
Alaska Steamship Co American Hawaiian Line American Line S.S. Corp. American Scantic Line American W. African Line Associated Oil Company. Atlantic Refining Co Bull Steamship Co Calmar Steamship Corp. Cities Service Transp. Co. Clyde Steamship Co Dollar Steamship Line	12 21 3 10 10 9 17 21 12 15 9 20	37,829 143,743 61,624 50,603 54,362 54,184 106,432 74,974 69,562 108,027 25,936 217,675	1 2 3 5 4	4658 15,798 61,624 30,388 22,638 23,084 5896 133,856	11 19 10 10 4 13 21 12 12 8 8	33,171 127,945 50,603 54,362 23,796 83,794 74,974 69,562 84,943 2J,040 83,819	Panama Mail S.S. Co  Pan American Pet. Co  Pacific Argen. Brazil Line Pocohontas S.S. Co  Sinclair Navigation Co  South Atlantic S.S. Co  Southern Pacific Co  Standard Oil Co. of Calif.  Standard Shipping Co  Standard Transp. Co  States Steamship Co  Sun Oil Co  Texas Co  Tidewater Oil Co	8 8 8 11 10 22 17 40 49 12 11 28	33,470 168,563 45,104 31,294 65,449 50,685 123,667 102,530 327,726 253,540 67,755 74,816 169,889 48,452	2 3 7 4 10 16 21 1 7 5	4867 24,754 48,932 32,468 66,156 148,347 107,088 5376 47,708 37,789 48,452	6 23 8 4 10 18 7 24 28 11 4 23	28,603 143,809 45,104 31,294 16,517 50,685 91,199 36,374 179,379 146,452 62,379 27,108 132,100
Eastern Steamship Lines. Export Steamship Corp Grace Steamship Co Gulf Pacific Line Gulf Refining Co Isthmian Steamship Co	21 24 13 8 33 15	65,035 126,384 83,082 26,539 200,565 86,814 78,325	1 5 5 7	13,827 5839 34,827 47,002 41,246	23 8 8 28 8	51,208 120,545 48,255 26,539 153,563 45,568	United Fruit Co United States Lines U. S. Steel Products Co. Total (Ocean)		71,013 108,414 190,671 93,061 <b>4,941,652</b>		34,192 3678 42,598 27,860 1,318,210	6 23 7 12 681	36,821 104,736 148,073 65,201 3,623,442
Los Angeles S.S. Co  Luckenbach S.S. Co  Mallory Steamship Co  Matson Navigation Co  M. & M. Transp. Co  Mississippi Shipping Co  Munson Steamship Line.  Mystic Steamship Co  Nelson, Charles Co	22 10 21 18 12 21 18 27	160,611 42,031 130,830 65,460 61,731 119,478 86,260 82,602	5 3 4	50,902 16,784 54,948	12 10 16 15 12 17 18 27	78,325 160,611 42,031 79,928 48,676 61,731 64,530 86,260 82,602	American Steamship Co. Bethlehem Transp. Co Cleveland Cliffs S.S. Co. Columbia Steamship Co. Ford Motor Co Goodrich Transit Co	12 8 14 10 8 8	74,661 55,206 83,769 64,694 37,396 15,699	mship	16,820 16,634 17,503	12 8 12 8 6 8	74,661 55,206 66,949 48,060 19,893 15,699
New England S.S. Co N. Y. & Cuba Mail S.S. Co. N. Y. & Porto RicoS.S. Co. Oceanic & Oriental S.S. Co. Ore Steamship Corp Pacific Atlantic S.S. Co Pacific Steamship Co Total	. 24	50,856 41,298 33,679 146,476 73,700 99,639 49,207	3 5	6127 22,371 46,130 637,945	14 8 9 21 5 17 16 459	44,729 41,298 33,679 124,105 27,570 99,639 49,207 2,277,608	Great Lakes S.S. Co Great Lakes Transit Co Interlake Steamship Co Nicholson Univ. S.S. Co. Pioneer Steamship Co Pittsburgh Steamship Co Reiss Steamship Co Wilson Transit Co Total (Great Lakes)	19 22 49 9 19 84 10 11 283	101,003 89,765 278,606 34,972 108,935 483,044 54,177 62,721 1,544,648	6 1 9 1 2 25	49,752 7931 71,422 8918 16,067 205,047	19 22 43 9 18 75 9 258	101,003 89,765 228,854 34,972 101,004 411,622 45,259 46,654 1,339,601

vessels of 499,087 gross tons from 30 to 40 years in age.

Graphical illustrations of the age of various categories of American merchant vessels are shown in the eight diagrams on pages 16, 17. These diagrams are a striking visual demonstration of the urgency for a program of replacement in the immediate future if our merchant fleet is to be maintained at anything like normal efficiency to serve the needs of trade. The black portion of each diagram indicates the number and gross tonnage of American merchant vessels now in commission over ten years of age. The shaded portions from one to ten years indicate the number and gross tonnage of vessels built during each of the last ten years.

The effect of current and recent passenger vessel building is evident. But it must be remembered that this is only slightly due to replacements of old units. It is due to the stimulus provided by mail contracts and represents rather an addition to the fleet than the replacement of obsolete units. On the other hand, only a very limited number of ocean cargo vessels have been laid down during the last ten-year period. It is obvious that we cannot long go on without an active program of building in this category. It must come. Every economic force from now on will tend to promote such a program.

Replacements of tankers, it is clear, must also soon begin because the life of a tanker, on account of deterioration of the hull structure, is less than that of other categories.

Corrosion plays practically no part in the length of life of vessels on the Great Lakes. Other elements, however, enter into the efficient usefulness of vessels on these waters as they become old. There is a constantly higher cost of keeping in repair, due to the wear and tear of bulk cargoes of ore and coal. Furthermore, obsolescence is a factor here both as regards machinery and the size and arrangement for efficient handling and carriage of cargo. It is evident from the diagrams on this category that an extensive program of replacement must take place in the near future. Recovery from the present economic depression will undoubtedly see the beginning of a substantial program of shipbuilding on the Great Lakes.

Other categories on the Great Lakes not listed in the tables nor given in the diagrams include five tankers of 19,879 gross tons and 16 ferries of 44,745 gross tons. Three tankers of 12,783 gross tons are over ten years of age. Nine ferries of 23,471 gross tons are over ten years of age.

This study also included 134 vessels each of over 1000 gross tons operating on inland waterways exclusive of the Great Lakes and not given in the accompanying tables or diagrams. In this number are included 78 cargo vessels, 19 tankers, 35 passenger vessels and 2 ferries. Of the 78 cargo vessels, 72 are over ten years of age. Eleven of the 19 tankers are over ten years old. Of the 35 passenger boats 22 are over ten years of age; and so are the two ferry boats.

The steamer President Coolidge, second of the new turbo-electric Dollar liners, will sail on her maiden voyage from New York on Oct. 15 for California, Hawaii and the Orient. She is a sistership of the President Hoover which recently entered service and is 653 feet long, 81 feet beam and of 23,000 gross tons. The new vessel has accommodations for 1260 passengers of which 220 will be first class.

### Form Holding Company For Diamond Line

The organization of a new company known as the American Diamond Lines, Inc., New York, which will own the properties of the American Diamond line, operating between New York, Antwerp and Rotterdam, was announced Sept. 21 by J. E. Dockendorff, president of the Black Diamond Steamship Corp. The contracts for the purchase of the line from the United States shipping board and the transportation of mail in its ships, which were signed on Sept. 18 in Washington, were executed in the name of the new corporation, he said.

The Black Diamond Steamship Corp., which has long been the operating company of the American Diamond line, while ownership was vested in the shipping board has become a subsidiary of the new company and will continue to operate the line for the account of the parent company. The American Diamond Lines, Inc., is a Delaware corporation, with an authorized capital of \$2,000,000, of which \$1,200,000 has been paid in cash.

The directors of the new company are Willard F. Place, director of the Securities Corp. of the New York Central railroad; Robert M. Youngs, partner in A. Iselin & Co.; Colonel William J. Donovan, of the law firm of Donovan & Raichle, and J. E. Dockendorff, who is president of both the new company and the Black Diamond company. Mr. Place is vice president of the new company, Robert M. Youngs is treasurer and V. J. Sudman is secretary. F. E. Huck remains vice president of the Black Diamond Company and V. J. Sudman remains vice president and treasurer.

The Fuller Lehigh Co., 85 Liberty street, New York, announces the removal on Aug. 28 of its Boston office from 80 Federal street to 49 Federal street. H. H. Leathers continues in charge as district sales manager.

#### Labor Day Lifeboat Race Won By Norse Crew

Eight Norwegian seamen from the Norwegian-American liner Bergens-FJORD won the fifth annual lifeboat race, held under the auspices of the Neptune association, New York, on Labor Day. It was the second straight victory for oarsmen of the Norwegian-American line, last year's race having been won by a crew from the STAV-ANGERFJORD.

A third victory next year will give the Norwegian-American line permanent possession of the silver cup trophy given by William H. Todd in 1927, when the first lifeboat race was rowed. Norwegian sailors have won every race but one of the series. In 1927, with a boat's crew from the South American liner Segundo coming in first, they won all three places. In 1928 a crew from the Cunard liner Mauretania won. In 1929 the winning crew was from the Sud Americana, of the Garcia & Diaz Line, a Norwegian ship.

### Plan Marine Exposition For World's Fair

Plans for participating in a Century of Progress exposition, Chicago's 1933 world's fair are being considered by leading steamship lines, manufacturers of marine equipment, supplies and machinery.

Steamship hall, occupying the northwest side of the Travel and Transport building already standing on Chicago's lake front, will house the exhibits of marine transportation during the 1933 exposition.

As a novel feature to attract the attention of the visitors, it is planned to reproduce a full-sized section of the exterior of a great ocean liner in steamship hall. Wharves and docks may give the appearance of an ocean port and a gang-plank spanning a stretch of water will carry visitors onto the deck.

Once inside the ship the visitors, however, will find exhibition halls. It is expected that there will be three floors. On the main floor it is planned to present exhibits of the various steamship companies showing travel accommodations and touring facilities and to trace the history and improvement in marine transportation during the past 100 years.

Exhibits of marine machinery, engines and equipment, it is expected will be shown on the lower floor, because of the weight of these machines, Manufacturers of marine equipment wil lbe able to trace the evolution of their machinery, and portray improvements which have resulted from the application of scientific discoveries and inventions. On the upper floor exhibits of marine and shipping supplies may be shown.

### Complete Largest Canadian Carferry

Charlottetown Enters Service Between New Brunswick and Prince Edward Island—Carries 16 Railroad Cars—Over 40 Automobiles and 750 People

built in a Canadian shipyard entered service toward the end of July between Cape Tormentine in New Brunswick and Port Borden, Prince Edward island. This is the new interprovincial carferry Charlottetown, built by the Davie Shipbuilding & Repairing Co. Ltd., Lauzon, Quebec, for the Canadian National Railways. The shipyard is a subsidiary of the Canada Steamship Lines Ltd.

At the launching of the CHARLOTTErown, May 20, attended by leaders in business and public life from the maritime provinces and Quebec and representatives of the dominion government, Mrs. Charles Dalton, wife of the lieutenant-governor of Prince Edward Island, was the sponsor. Although exceeded in length and other dimensions by vessels previously launched in Canadian yards, the CHARLOTTE-Town is said to be the heaviest ship ever built in Canada, weighing approximately 4800 long tons at the time of launching. All of the machinery was installed before launching and the new vessel was complete at that time except for interior fittings.

Because of conditions under which she will operate in winter service, the CHARLOTTETOWN has been designed as a combined ice breaker, carferry and passenger ship. She is equipped with three special heavy manganese steel propellers, one forward and two aft, designed to act as ice cutters. The vessel is of heavy sturdy construction with a speed of 15 knots. She was designed by Lambert & German, naval architects, Montreal, acting under instructions of H. T. Hazen, assistant chief engineer of the Canadian National Railways. She has been built

to the highest class in Lloyd's for the service intended and also to meet the requirements of the Canadian board of steamship inspection. Her engines and boilers were built by the Canadian Vickers Co., Montreal.

#### Can Carry 16 Freight Cars

On three sets of tracks the new ferry accommodates 16 of the largest type of railway cars. Space is also available for between 40 and 50 automobiles and there are accommodations for 750 passengers, officers and crew. About 450 tons of fuel oil is carried in her bunkers; also 15 tons of provisions and stores for crew and passengers are

#### Carferry Charlottetown

#### General Particulars

cashire Dynamo Co. Each 85 kilowatts.

Service-New Brunswick to Prince Edward Island.

Propellers-Three; heavy manganese steel.

wick and Prince Edward Island was maintained by the carferry Prince Edward Island was maintained by the carferry Prince Edward Island, built in Great Britain before the war. The firm who built this vessel has a special reputation for building large ice breakers and she has maintained a consistently dependable service for the past 13 years. A new

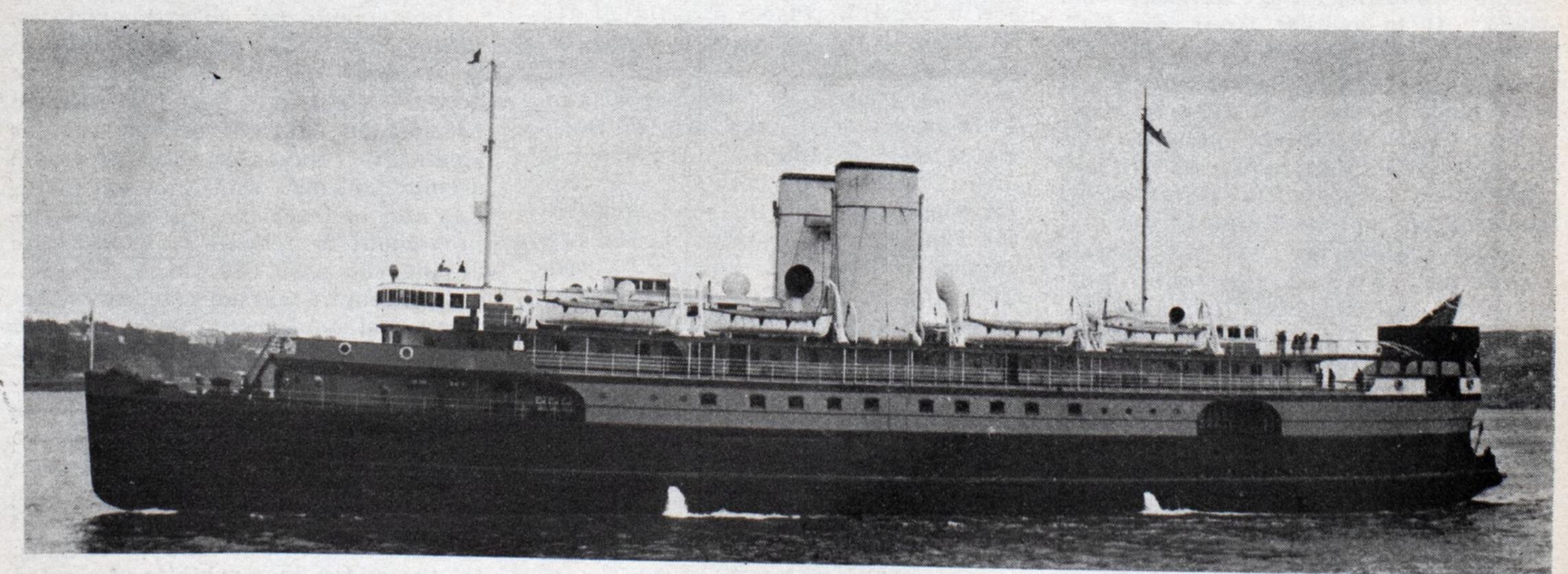
carried. Cargo capacity is 1380 tons.

Until the advent of the CHARLOTTE-

vessel was needed, however, not only to take care of increasing traffic, but also to safeguard the service against possible suspension at a critical period, due to necessary repairs. In view of the arduous service in winter in the Northumberland straits, such an eventuality was not unlikely at some time or other.

Since the building of the carferry Prince Edward Island, quite a number of icebreakers of various kinds have been successfully built in Canadian shipyards, notably the Mikula, and more recently the Saurel and the N. B. McLean, so that, although the projected new vessel was intended to be exceptional in many ways, it was well established that from the point of view of technical ability to build and engine such a powerful vessel, Canadian shipyards were as well able to undertake its building as were the better known British shipbuilding firms.

Ability to build is one thing, but cost of building unfortunately is sometimes quite another, and the cost of such a vessel built in England would have been much less, due principally to the lower labor rates applying in the British shipbuilding industry. The labor element in Canada rightly feels that it should not be penalized in the awarding of government contracts, and



Twin Screw Carferry Charlottetown Built by the Davie Shipbuilding & Repairing Co. Ltd., Lauzon, Quebec, for the Canadian National Railways for Service Between Cape Tormentine, New Brunswick, and Port Borden, Prince Edward Island

has been considerably disturbed that other government owned vessels, such as those recently built for the Canadian National Steamships, have been built outside of Canada, on the ground of cost.

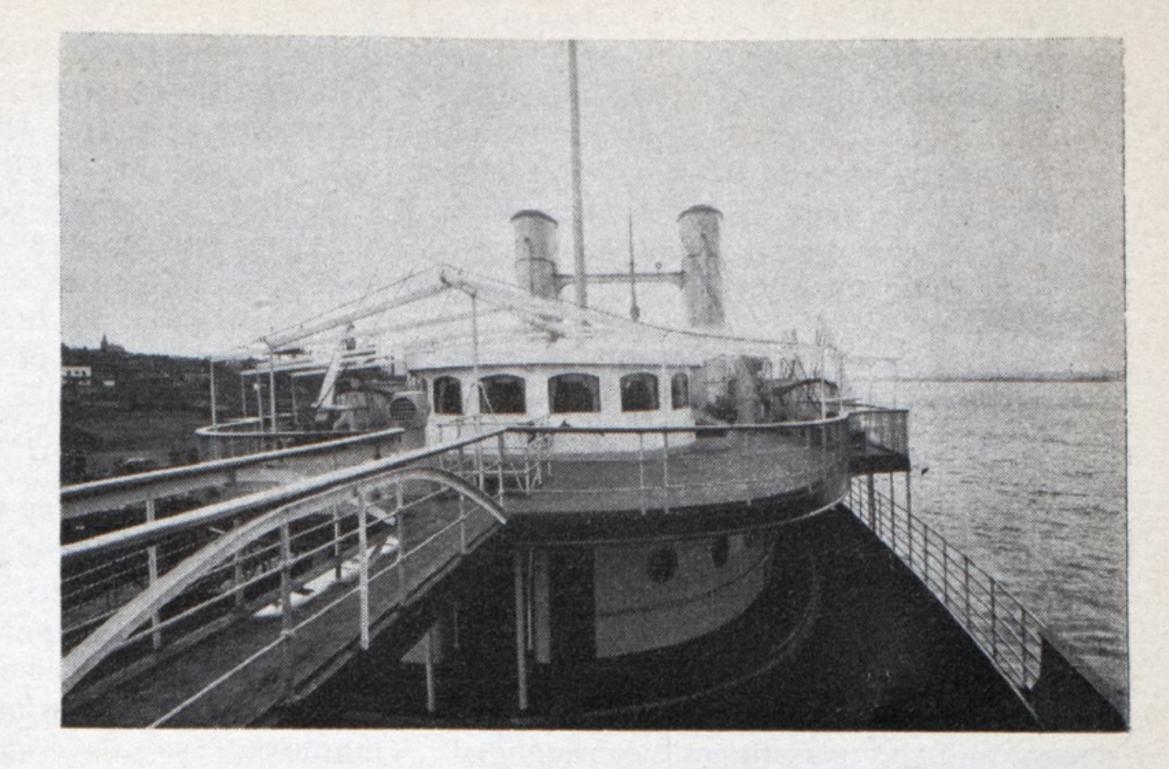
Insofar as the Canadian National Steamships are concerned it would seem reasonable that no other policy could consistently be adopted, as they have to meet competition in operation with vessels flying flags of other nations. After all one cannot very well bemoan the annual payment of deficits against government steamship operations, while at the same time endeavoring to compel the government by force of popular opinion to unduly increase capital charges by anything from 50 to 100 per cent.

The case of the car ferry is radically altered by the fact that its operation is not a competitive one, the maintenance of the service is a necessity required by the act of confederation, regardless of whether it is an asset or a liability from a financial standpoint.

It was not surprising, therefore, to

Boat and Promenade deck on the carferry Charlotteown looking from Bridge deck. Life boats under mechanical davits. Two stacks arranged athwartship

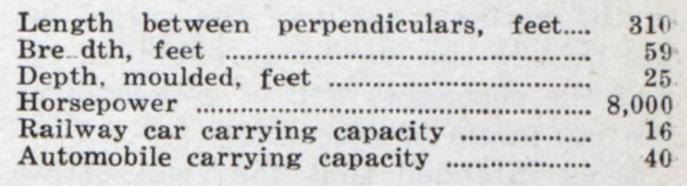
ACCORDING TO STATE OF THE CONTROL OF



was made just a few days after this date.

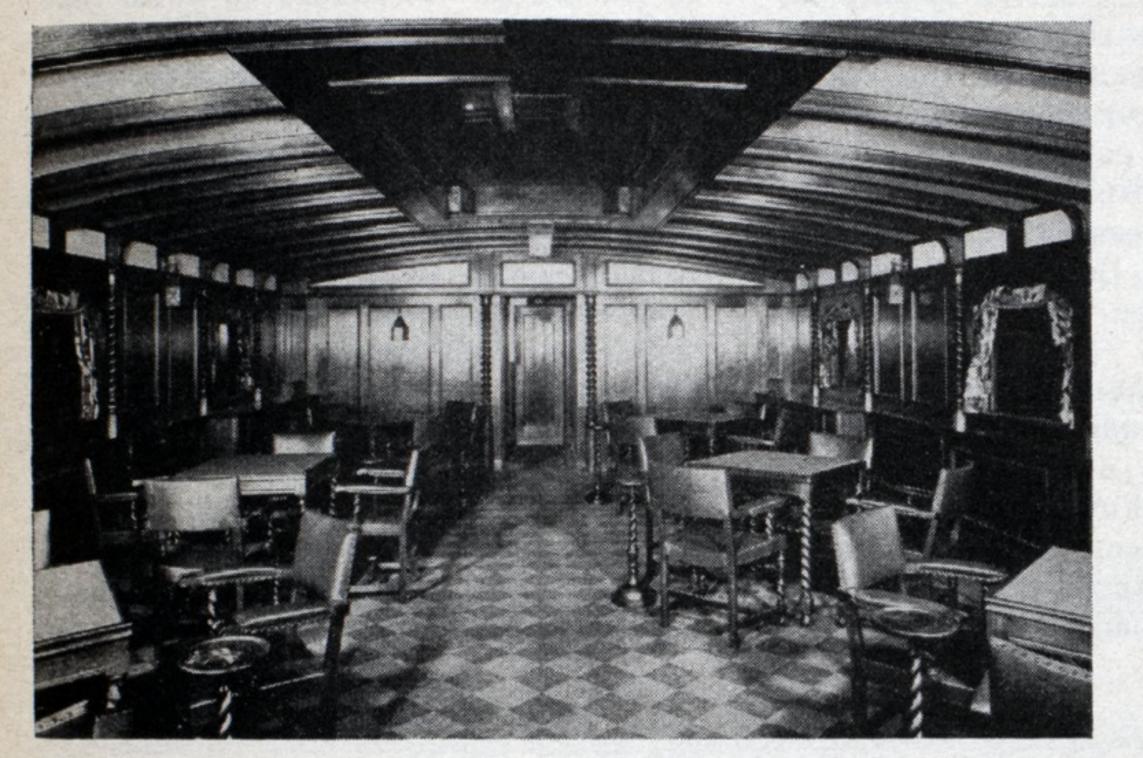
While, as before stated, the ferry, PRINCE EDWARD ISLAND, has maintained an adequate service in the past, the growing railroad traffic requirements, and the entirely recent provision required for the transportation of auto-

The similar particulars for the ferry Charlottetown are:



In order to avoid the necessity of building new terminals which would entail a heavy capital expenditure, and in order to avoid the neccessity of dredging the terminal approaches to a greater depth which, by reason of the rocky nature of the bottom, would entail excessive cost, it was desirable that this larger, heavier and more powerful vessel should operate at the same draft as the existing ferry, and this requirement has in itself necessitated the adoption of oil fuel for the new vessel instead of coal fuel as is used in the existing vessel. The reason for this is that the weight of oil fuel required to give the vessel a stated steaming period is very much less than would be the case with coal fuel, and in fact, allows of a saving in displacement or. an increased weight to the vessel, its machinery and equipment of as much as 300 tons. In other respects also, an analysis of the operating conditions disclosed considerable economical advantage to oil fuel.

Special automobile approaches have been constructed at the terminals, and the automobile deck is so arranged that automobiles will be driven on to the vessel and off it in single file and



Smoking Room on the Carferry Charlottetown. Passenger Accommodation are of the highest type to provide comfortable traveling for 750 people

find a disposition emanating from Ottawa favoring the construction of this vessel and all its component parts in Canada, and attaching broadly more importance to the distribution of the money involved among Canadian workmen, and in the use of Canadian materials, than to the economy possible by the allocation of the work outside of Canada. There are, of course, some items of ship material and equipment which are not manufactured in Canada, and these were required to be obtained from British manufacturers.

Labor, as in the case of other government contracts, has to be paid rates in conformity with the stipulation of the "fair wage clause," which is another factor influencing cost of construction in favor of British shipyards.

After considerable competition from the various Canadian shipyards able to tender on this construction, the contract for the new ferry, named the Charlottetown, was awarded to the Davie Shipbuilding & Repairing Co. Ltd., of Lauzon, Quebec, who was required to deliver the vessel ready for service by July 15, 1931—and delivery

mobiles has necessitated a vessel considerably larger and more powerful.

The principal particulars of the Prince Edward Island are:

Carferry	
Length between perpendiculars, feet  Breadth, moulded, feet  Depth. moulded, feet	. 52
Horsepower  Railway car carrying capacity  Automobile carrying capacity	12

Three railroad tracks on the Carferry Charlottetown for 16 large freight cars. There is also space for 40 automobiles arranged so cars can be driven on and off without maneuvering



without necessity for backing or other objectionable maneuvers for position. All ship construction in the vicinity of the automobiles is of fireproof material so that in the event of any of the cars catching fire while on board the vessel, there will be no risk of a major disaster.

Steam is raised by eight Scotch boilers, but in normal summer time service only four will remain in service. There are three propellers, two aft and one forward, which latter will only be used in the winter time for the purpose of assisting in the breaking of ice.

The vessel is equipped with very complete aids to navigation of the most modern type, including wireless telephone, and the passengers' accommodation is of the most sumptuous character, including modern dining room service, and especially arranged so that in the unlikely event of the vessel being held in the ice for an extended period the pasengers will be subjected to the minimum of discomfort.

It is intended that the twin screw carferry Charlottetown will take care of the winter and summer traffic requirements, while the Prince Edward Island will in future only operate at such times as the new ferry will undergo its annual overhaul, and as required to take care of peak traffic requirements in the summer time.

The accompanying illustrations give a good impression of the vessel, and clearly show that Canadian shipyards have no reason to fear comparison with shipyards in other parts of the world.

Five attractively furnished public rooms are provided for passengers, including a spacious dining room, comfortable lounge and rotunda, smoking and observation rooms suitably located. Following the launching of the vessel trial runs were made in the St. Lawrence river, at Levis and at Murray Bay, where official distances were already marked off for the tests. All material used in the construction were produced in the British Empire and, wherever possible in Canada.

The importance of the shipbuilding industry to Canada is demonstrated by the figures issued in connection with the construction of the new vessel. The cost is about \$2,500,000. Over 12 months was required to build the ship, the keel being laid in June of last year, and employment was given to between 500 and 600 men during most of this period. All Canadian labor was employed.

#### All Guarantees Successfully Met

Two-thirds of the steel used in the new ship was imported from the British Isles, being unobtainable in Canada. The balance was secured in the Dominion. Ninety per cent of the lumber used was secured in Canada, the remaining ten per cent teak wood, necessary in the construction of ships of all types, was secured from India. All interior furnishings, with the exception of covering which are not manufactured in this country, were made by Canadian furniture companies. The coverings were secured in Great Britain and sent to Canada where they were applied to the furniture by Canadian workmen.

Electrical, plumbing and other fixtures were all made in Canada from British materials and were installed by Canadian workmen.

One of the accompanying illustrations shows the three tracks for carrying the 16 railroad freight cars. The ventilation openings between the tracks, some 20 in number, are closed by special steel hatch covers, designed by MacGregor & King Ltd., London. They vary in length from 8 feet to 20 feet and are 3 feet 6 inches wide. They roll in a fore and aft direction between the rail tracks. These covers are watertight and are an important element in the safety of the vessel. At the same time they are easily opened and closed, eliminating the usual stowage difficulties with wood hatches and tarpaulins.

The Charlottetown is now in regular service, permitting the Prince Edward Island to undergo a much required major overhaul, and has carried on one trip as many of 16 large railroad cars and 44 automobiles, a load which would require at least two trips for the Prince Edward Island.

All guarantees as to developed power, draft and fuel consumption, were met with a slight margin in each case, reflecting credit to the builder and the naval architects.

This is the most powerful carferry in the world. It should be noted that the machinery of a total 8000 indicated horsepower in three triple expansion reciprocating steam engines was constructed and installed by Canadian Vickers Ltd., Montreal. The same firm was responsible for the fine woodwork in the public rooms.

The building of this vessel represents the most valuable contract ever awarded to a Canadian shipyard, and in the building of no other ship in Canada have such pains been taken to ensure that the materials and workmanship, the machinery, equipment and furniture shall have been the products of Canadian enterprise.

### What the British Are Doing in Shipbuilding

WGRAY & CO. LTD. of West Hartlepool have secured an order from a London firm for a cargo steamer of 9000 tons and the outlook in the district has considerably improved as it is only a few weeks ago that a contract for a similar sized steamer was placed. The last steamer launched at this shipyard was in September last.

A CONTRACT has been placed with Lithgows of Port Glasgow for a vessel of about 6000 tons to the order of the Jamaica Direct Fruit line, London. It will be specially designed and equipped for the transport of bananas from the West Indies to this country. Last year Lithgrows built for the same owners the Jamaica Pioneer the first ship to be specially built for her owners' banana trade and the new

vessel now ordered will be similar in most respects.

A SCHEME has been propounded by British steelmakers to assist British shipbuilders in the matter of prices. The steel makers have agreed to make a levy on themselves or in other words on the steel produced in this country which is calculated to raise a sum of £50,000 and this fund is to be used as a subsidy to shipbuilders using only British steel under the existing rebate system. This sum is to be raised over the ensuing six months by a levy in proportion to deliveries of steel by the steelmakers and is to be handed to the Shipbuilding Employers federation for use in assisting builders to compete orders which might otherwise abroad owing to the lower prices

quoted by foreign shipbuilding firms.

THE output from the Clyde in August which consisted of one vessel of 14,000 tons is among the lowest on record for the river during August. On the other hand, a decided improvement was recorded in the placing of new contracts mostly for cargo steamers. The fact that shipowners are again ordering vessels of this type gives hope of some improvement in shipbuilding for the autumn and winter months. The total output launched on the Clyde since the beginning of the year now consists of 40 vessels of about 135,000 tons gross as compared with 140 vessels of about 385,000 tons in the same period last The vessel launched on the year. Clyde in August was the P. & O. liner CARTHAGE.

### Two Hog Island Freighters Rebuilt

Delnorte and Delsud Sail from New Orleans to East Coast South America

—Attractive Passenger Quarters—Speed Increased to Over 13 Knots

of six attractive combination passenger and cargo liners already on the high seas the Mississippi Shipping Co.'s inauguration of its passenger and mail service between New Orleans and the principal ports of the East coast of South America, is an accomplished fact.

The Delnorte, first of four erstwhile freighters to be converted into a passenger vessel of the newest and most comfortable type, sailed from New Orleans on Aug. 29 for Rio de Janeiro, Santos, Montevideo and Buenos Aires. Her sister ship, the Delsud, second passenger liner from a Gulf port to South America sailed on Sept. 19.

#### Conversion Proves Successful

Much significance is attached by Commissioner Roland K. Smith of the shipping board to the entirely successful manner in which the old freighters Schoodic and Salvation Lass have been converted into higher speed passenger vessels, the Delnorte and Delsub. The conversion of these two ships and of the two which are to follow them as rapidly as possible, is a creditable performance in steamship engineering and architecture on the part of the officials of the Mississippi Shipping Co. which owns them, and those who planned and carried out the work of rebuilding.

Purchase and rebuilding, as well as refitting, the first two of these ships alone cost approximately \$1,000,000 according to N. O. Pedrick, who has been general manager of the company since it first organized in 1919. The next two ships, namely the Delvalle

and Delmundo, will represent about the same outlay.

In the reconditioning of these vessels, not only was the entire bridge superstructure rebuilt and equipped in the most distinctive fashion, but the propelling machinery, too, was remodeled.

The increasing of the speed through modification of the existing propelling machinery was accomplished in the face of much technical advice against the plan. While many shipping board vessels have been reconditioned and have had their speed increased, heretofore it has been held necessary to replace the existing machinery with the result that the total cost has been in excess of \$1,000,000 per ship. Although admittedly an excellent reconditioning job, the conversion work on the Delinorte and Delsud was done at less than one half this cost.

#### More Pleasing in Appearance

In addition to the reconstruction of the superstructure and the remodeling of the propelling machinery, new auxiliary machinery was installed and the lines of the ships were so changed that they present an entirely different appearance from what they did as freighters.

J. F. Paige, senior member of the firm of Paige & Strachan, consulting marine engineers, New York, and formerly manager of operations for the United States shipping board at New Orleans, prepared the plans and specifications for the modification and installation of the machinery and alterations to the hull, rudder and propeller, resulting in increasing the

speed from less than 11 to better than 13 knots. On her sea trials between Mobile and South pass the Delnorte averaged 13.77 knots.

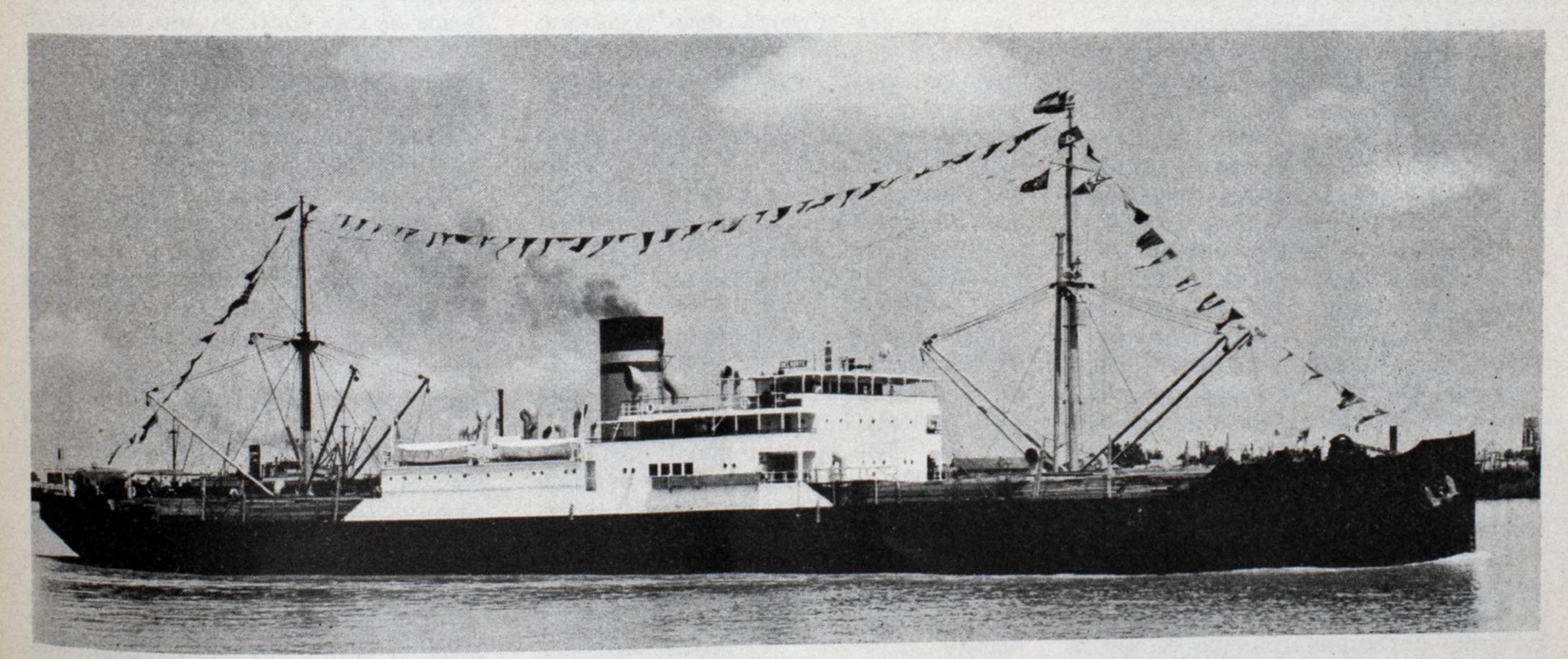
George G. Sharp, naval architect, New York, designed the deck plans and passenger accommodations for the vessels, including in them the "veranda plan" which adds a unique note of comfort and luxury. Elizabeth Capers, interior decorator. New Orleans, selected and arranged the beautiful interior furnishings of the ships.

#### Work Done in New Orleans

Installation of machinery, streamlining the stern of the Delnorte, installing a contrarudder, and the other
work incidental to increasing the vessel's speed was done by Johnson Iron
Works Dry Dock and Shipbuilding
Co. All other work incidental to providing passenger accommodations in
both vessels, together with the entire
reconditioning of the Delsud was done
by Jahncke Dry Docks Inc.

The machinery as originally installed in these vessels is of the General Electric Curtis turbine type with double reduction gears, reciprocating circulating engine and twin-beam air pump. The boilers are the Babcock and Wilcox large tube type, fitted for burning oil fuel.

Designed shaft horsepower of the above equipment was 2500 and the normal sea speed of the vessels 10.75 knots. In order to gain a sufficient increase in power to meet the speed requirements of thirteen knots in service important changes were effected in both turbines and gears, the latter being practically rebuilt. The



8. 8. Delnorte—Newly Reconditioned Hog Island Type Freighter for the Mississippi Shipping Co.—Speed at Sea 13 Knots

power was increased to about 3140 shaft horsepower.

The condensing equipment was entirely rebuilt. This in the DELNORTE consisted of lengthening the existing condenser and increasing the number of tubes. In the Delsub a complete new condenser was installed. existing air and circulating machinery was removed from both ships and in place thereof was fitted a surface inner and after condenser, a horizontal duplex condensate pump and a two stage steam jet air pump. A turbine driven main circulating pump, capable of delivering 9000 gallons of water per minute was installed. The operation of this equipment has been most satisfactory, a vacuum of 28.2 inches being maintained under full power conditions, with a sea temperature of 84 degrees Fahr. The condensing equipment was furnished by the Foster-Wheeler Co.

The main boilers were thoroughly overhauled and the working pressure increased as permitted by the rules of the United States steamship inspection service. The boiler fronts were removed and replaced with new fronts fitted with cuyama burners supplied by the Babcock & Wilcox Co. Boiler feed water regulators of the Babcock & Wilcox type were fitted to the Delnorte. Diamond soot blowers were fitted to the boilers of both vessels.

#### Special Type Rudders Installed

All existing auxiliary machinery and apparatus was treated as considered necessary to handle the increased power demand.

A Contra-type rudder has been fitted to the Delnorte and an Oertz type rudder to the Delsub. Moderate streamlining was effected at the stern of both vessels.

Prior to sailing, the Delnorte was given a full power sea trial under practically voyage conditions. An average speed of 13.77 knots was maintained between the port of Mobile and the sea buoy at South pass at the entrance of the Mississippi river.

Both the Delnorte and Delsub are each equipped at present for 28 passengers. Through the use of Mr. Sharp's veranda plan there are no inside cabins. All of the cabins opening on to the verandas are equipped with private baths. Completeness of detail is the keynote in the furnishings. The walls are colored in jonquil tints, the carpets are taupe and the hangings are flowered chintz. Twin beds with inner coil spring mattresses; and dressing tables with wardrobe units are in each cabin. No ceiling lamps were used in the staterooms as indirect lighting was sought throughout.

In each cabin, too, are ventilating ducts, equipped with exhaust fans, so placed that while a part of the system expels the stale air, the other part brings in fresh air, the whole accomplishing a complete change of air in each cabin every six minutes. An oscil-

lating fan is available for use as needed and for winter voyages the system is so equipped that the air brought in will be first warmed.

These cabins, together with the foyer, the dining salon and the verandas, are located on the bridge deck. There is ample room provided for the enlargement of the passenger facilties so that as occasion demands, provision may be made for the accommodation of several times as many as with the present arrangement.

On the boat deck are located the lounges, radio room, officer's quarters and promenade. Aft of the flying bridge there is additional deck space for deck games, dancing or promenade.

Floors of the salon, the lounge the foyer and the ocean verandas are of maroon tile. On the walls of the public rooms and in the passageways are costly oil paintings of New Orleans scenes.

The dining salon is particularly attractive and will stand comparison with much larger and more pretentious ships. Two handwrought iron table lamps light the refectory board of old walnut. Candelabra and earthenware flower bowls grace the sideboards. From the foyers, stairways lead to and from the large lounge on the deck above. Wrought iron balustrades lend their grace to the stairs which are surmounted by iron lamps of fine detail.

The upper lounge extends entirely across the ship and has eight large casement windows, three on either side and two on the far end. A simplicity of arrangement has been attained in the furnishings of these rooms. Deep lounge chairs, comfortable sofas and individual tables with shaded lamps are provided. The windows are draped with rich fabrics and the floor is covered with a broadloom carpet.

#### Rooms Are Light and Spacious

Light and air and spaciousness are the dominant characteristics of the verandas, which look out immediately onto the sea through deep windows. Wrought iron fixtures here blend with malacca chairs, covered with orange and green cushions. Iron grille work and gay window hangings add another note of vivid color.

Officer's quarters, galleys, pantries, the dining rooms for the officers and the steward's quarters are aft of the passenger accommodations on the bridge deck.

All passageways leading from the living quarters to the boat deck are lighted by an emergency lighting system entirely independent of the ship's circuit. The current supply for this system is provided by a bank of auxiliary storage batteries. These batteries likewise supply two flood lights mounted on each wing of the bridge in order that the loading of the lifeboats may be carried out with the utmost safety.

The work of reconditioning the two

vessels was done under the direct supervision of J. F. Paige, with V. M. Friede, New Orleans, as resident inspector. C. Middleton representing Mr. Sharp supervised the details of passenger accommodations. Valuable assistance was contributed by the port staff of the Mississippi Shipping Co. particularly by J. E. Hart, port captain, C. V. McKenzie, port engineer and T. V. Major, port steward.

The vision and keen judgement of a small group of New Orleans business men brought about the organization of the Mississippi Shipping Co. in 1919. The World war had virtually destroyed previously existing shipping channels and the coffee industry in New Orleans had suffered severely. These men—Thomas F. Cunningham, president of the company, M. J. Sanders, George G. Westfeldt, Rudolf S. Hecht and Theodore Brent—felt that a New Orleans-owned and operated steamship line supported by the importing interests of the city could succeed.

#### Service Started Twelve Years Ago

Service between New Orleans and South America was started by the company in July, 1919, when a small freighter, one of a fleet of four, operated for the account of the United States shipping board, hoisted the house flag of the Delta line to it's masthead and set out for Rio de Janeiro.

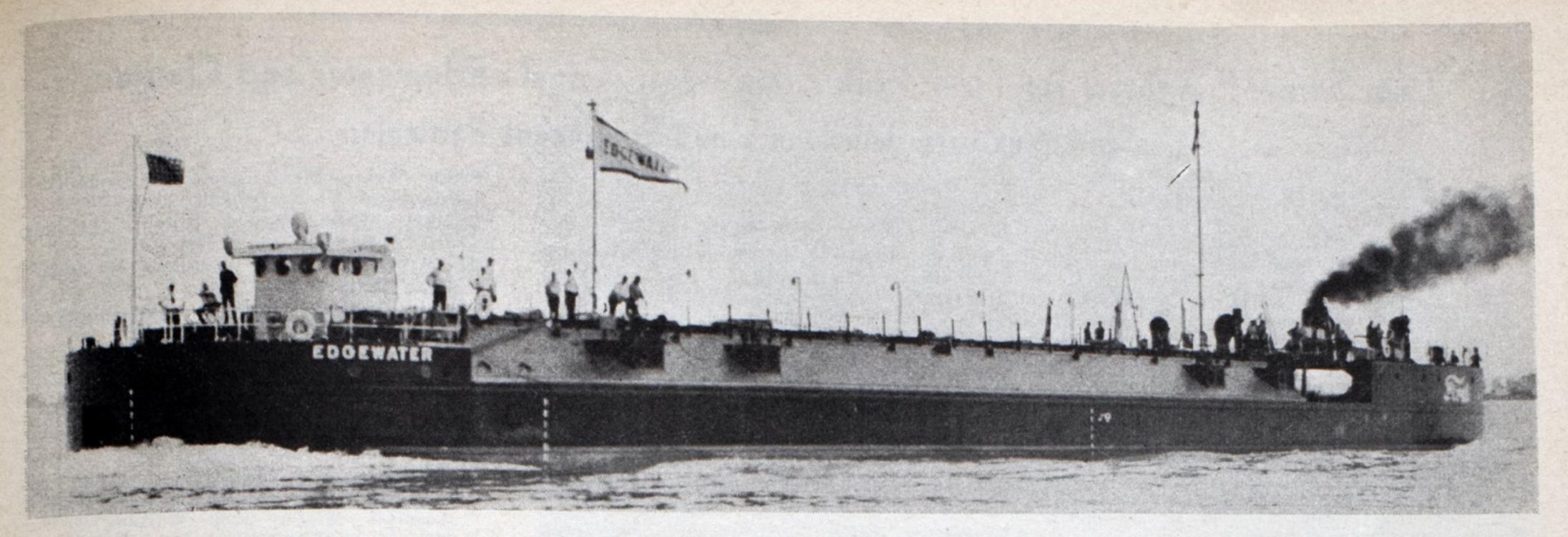
Through the years the company prospered. The name of the Delta line was changed by the shipping board to the Gulf-Brazil-River Plate line. Operations of the company were expanded and its capital increased, entirely through increased earnings.

Then came the decision of the shipping board to sell its vessels. The Mississippi Shipping Co. bought the twelve which it was then operating in the South American service. It bought them in 1929 for \$2,700,000 with the understanding that a government mail contract would be awarded the purchaser.

Not until 1930 was this contract awarded, however, and it is under the terms of this contract and because the Mississippi Shipping Co. feels that there is an urgent need for the service that the fast passenger and mail line, with four converted and two new vessels, is being inaugurated.

The Delnorte sailed on her first voyage on August 29, her first port of call to be Rio de Janeiro; thence to Santos, Montevideo and Buenos Aires. At the time of sailing she was loaded to a mean draft of 23 feet 4 inches. Reports received from the vessel indicate that she has maintained an average speed of 13.5 knots under normal sea conditions and with a daily fuel consumption within the estimated amount.

The Delsub sailed from New Orleans on September 19, thus establishing with her sister ship the passenger service which will be further developed as other ships are reconditioned and placed in service.



Twin Screw Turbine Reduction Geared Barge Canal Freighter Built by Great Lakes Engineering Works, River Rouge, Mich.

### Ford Canal Freighters Enter Service

Two Vessels Recently Completed—New Features of Design—Operating Between Lakes and Ocean—Via New York Barge Canal and Hudson

HETHER on land or sea the Ford Motor Co. may always be depended upon to show originality, to depart from the beaten path of custom. Never was this better illustrated than in the design of recently completed freighters EDGEWATER and CHESTER for service from the Great Lakes to tidewater through the New York state barge canal. These two vessels, 300 feet in length overall, were recently completed at the shipyard of the Great Lakes Engineering Works, River Rouge, Mich. The EDGEWATER sailed on her maiden voyage from River Rouge on Aug. 17, loaded with a shipment for the Ford plant at Edgewater, N. J. The CHESTER sailed on her maiden voyage from River Rouge on Aug. 27 with 2100 tons of motors and parts for the plant at Edgewater, N. J.

It is understood that this is but the beginning of a program for building a large fleet of suitable vessels for this service. Every feature of the new vessels will be studied in practical operation with the greatest care. Changes and modifications which may be found necessary from actual operating experience will serve as the best possible guide to the development of an entirely satisfactory type of craft for this service. The Ford Motor Co. can therefore be said to be conducting a very valuable practical experiment in using the great canal system through New York state. And the lessons to be learned from this experiment will directly benefit the entire industrial area surrounding the Great Lakes.

These two ships are radically different from other craft hitherto using the barge canal. Never before has high pressure steam turbine reduction geared main drives been used.

The machinery was selected and the vessels were designed to give the highest economical speed at the lowest cost per ton mile.

Over a period of years, the Ford company has been deliberately deserting large inland plants in favor of waterside sites because of the possibilities of economical water transportation. In such locations no cargo need be handled more times than necessary and transportation costs may be reduced to a minimum, which ultimately reacts to the consumers' benefit.

When the Edgewater, first of the two ships, went into service, the Ford engineers had achieved the result

ing several months before actual contracts were let, they consulted with shipyards, naval architects, engine builders and boiler manufacturers. To that group they made no stipulations of exact requirements but they did establish fundamental considerations which had to be met.

they had set out to accomplish. Start-

The ships had to be of the best economical size for operation through the New York state canal system. They had to carry the maximum cargo, had to carry the most efficient power plants marine engineers could design and had to operate with comparatively small crews.

Because the two ships had to prove the feasibility of building a fleet capable of handling all freight between the Great Lakes and Atlantic coast plants of the Ford company, the engineers made an extensive survey of the canals with the co-operation of Commissioner Ralph D. Hayes. From Oswego to Troy, the group plotted a course for the possible 300-foot boats. They measured the turning area in bends, investigated the size of locks, the depths, and collected all other information vital to continuous operation of the vessels.

In the smallest lock, which is 304 feet overall, the ships will have a clearance of two feet on either end and in the Troy lock, the EDGEWATER with a beam of 43 feet will have to clear a width of only 44.44 feet. The minimum depth of the canals is 12 feet and the ships draw 9½ feet loaded with 1800 tons of cargo.

Because a number of fixed bridges had to be cleared by the ship's superstructures, all above deck equipment is collapsible. The pilot house drops into a well similar to an elevator shaft; the smoke stack falls flush to

#### Barge Canal Cargo Ships

General Particulars

S.S. Edgewater S.S. Chester

Owner
S. S. Edgewater:  Launched
S. S. Chester:  Launched
Length overall, feet, inches
Beam molded, feet, inches
Gross tonnage
Propellers, solid bronze
Astern shaft horsepower at 250 r.p.m
Engineering Corp., working pressure per sq. in

### Twin Screw Freighters for New York State Barge Canal - Edgewater and Chester Main and Auxiliary Machinery and Equipment Particulars

#### Engines, Boilers & Auxiliaries

Main Turbines and Gears—Two units, triple expansion turbines, each unit delivering 800 shaft horsepower through double reduction gearing to each propeller at 250 revolutions per minute. Total shaft horsepower per vessel, 1600. Each unit also has one astern high pressure turbine developing 520 shaft horsepower. Total astern horsepower, 1040. Turbines and gears Westinghouse Electric & Mfg. Co.

Boilers—Two marine watertube boilers designed to supply 21,000 pounds of steam at a working pressure of 425 pounds per square inch and 200 degrees superheat; oil burning; water-wall type; built by Combustion Engineering Corp.

Condensers—Westinghouse, 520 square feet.
Circulting Pump—Westinghouse, 3000 gallons
per minute.

Condensate Pump—Westinghouse, 20,000 pounds per hour.

Air Ejectors—Twin. Two stage, Westing-house.

Oil Cooler—Single pass surface type, 100 gallons per minute, Westinghouse.

Fans—Turbine driven propeller type, 20,000 pounds air per minute for induced draft; Westinghouse.

Oil Burning Equipment—Two burners per boiler; Peabody Engineering Corp.

Fuel Oil Pumps—Quimby, screw type; motor driven; six gallons per minute.

Oil Heaters—Westinghouse; 100 square feet surface.

Strainers-Schutte & Koerting Co.

Fuel Oil Transfer Pump—Worthington, 45 gallons per minute.

Generators—Westinghouse, 50 kilowatts.

Balancer Set—Westinghouse, 5 kilowatts.

Main Feed Pumps—Westinghouse, 60 gallons

per minute at 550 pounds. Feed Water Heater—Westinghouse, 120 square

feet.

Feed Water Control-Copes.

Combustion Control—Smoot Engineering Co. Injector—Schutte & Koerting; 1½ inch.

Salinity Indicator-Sperry Gyroscope Co.

Evaporator Distilling Unit—Paracoil, Davis Engineering Corp, ten tons for 24 hours.

Switchboard—Great Lakes Engineering Works; dead front; four panel stainless steel.

#### Pumps and Services

Ballast and Bilge—Nash 3 x 4 Westinghouse turbine.

Bilge in Engine Room—Nash 3 x 4; motor driven 5 H. P. Westinghouse motor.

Fire Pump—Turbine driven, 200 gallons per minute, Worthington with Westinghouse turbine.

Salt Water Sanitary—Worthington, 80 g llons per minute; 2 H. P. motor, Westinghouse. Fresh Water-Worthington, 45 gallons per minute; 3 H. P. Westinghouse motor.

Drinking Water—Westco; 5 gallons per minute; ½ H. P. Westinghouse motor.

Drain Tank—Westco; 10 gallons per minute; motor driven.

Culinary Transfer—Westco; 5 gallons per minute; motor driven.

Salt Water Cooling Service-Westco; 45 gallons per minute.

#### Miscellaneous Equipment

Deck Machinery—Steering gear, screw type, duplic te motor driven. Mooring winches, automatic tension type. Warping winches, with 14 by 24 gypsy heads. Hatch cover winches, single drum motor driven. Windlass, with vertical wildcats for 15%-inch stud link chain. All of the foregoing deck machinery supplied by the Benson Electric Co.

Pilot House Control—Sperry Gyroscope Co.
Stack Operating Gear—Hydraulic, Great Lakes
Engineering Works.

Propellers—Two of solid bronze for each ship, Ferguson & Co.

Outboard Bearings—Two for each ship, Cutlass type rubber bearings, B. F. Goodrich Rubber Co.

Telegraphs-Electrical, Ch s. Cory Corp.

Operating Gear for Pilot House—Great Lakes Engineering Works; hydraulic ram type.

the deck and the mast is dropped by hand.

Each vessel carries a total of 1600 horsepower in two Westinghouse geared turbine units operating silently and without vibration and developing a speed of 13 miles an hour. Control may be maintained from the pilot house forward by an electric system capable of starting the engines, stopping and reversing. Dual rudders are virtually efficient enough to turn the ships without forward motion.

The power units occupy only 30 feet of the overall length and are situated in the stern of the draft. The crew's quarters are aft and the officers' quarters are forward, leaving a total of 145,000 cubic feet for cargo space, served by nine telescopic hatches.

The ships were built in record time, slightly less than five months elapsing between the date when the contract was let and the first trial trips were made.

After deciding upon the general

specifications of the hulls, the Ford engineers investigated the different types of power, going from diesel to dieselelectric, from steam to turboelectric and finally decided upon special 800-horsepower Westinghouse geared turbines, two units to each craft. Not satisfied with the boilers then available they ordered special ones to be designed by the Combustion Engineering Corp.

Thus the two ships were built and they are now both in service, seven months after the initial contracts were let. In every detail they are identical. The overall length is 300 feet, beam 43 feet, molded depth, 20 feet and draft 9½ feet when loaded to the normal capacity of 1800 tons. The maximum clearance is 15 feet.

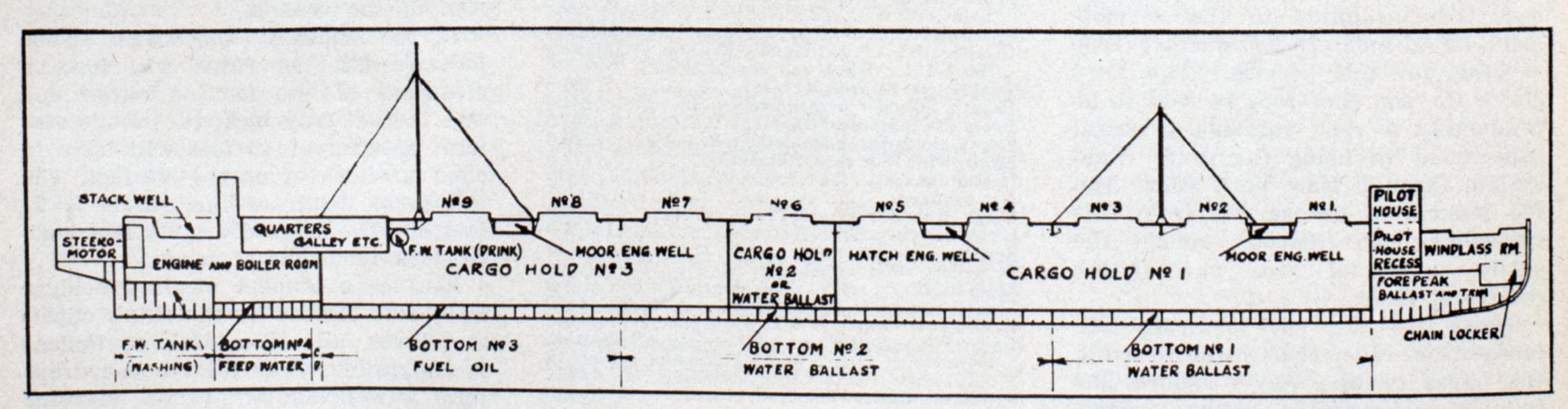
During the trial run of the EDGE-WATER, the vessel swung about on its dual rudders with no appreciable forward motion. The power was switched from ahead turbines to the astern turbine in nine seconds and the vessel was stopped within one and one-half times its own length. The speed was

13 miles.

The boilers, designed to furnish 21,000 pounds of steam at a working pressure of 425 pounds per square inch and 200 degrees superheat, are oil burning, marine watertube, of a water-wall type.

The main propelling machinery consists of two units of high pressure, intermediate pressure and low pressure turbines for ahead power and one astern high-pressure turbine assembled in a common structure. The ahead turbines of each unit develop their rated shaft horsepower of 800 at 7000 revolutions per minute. The astern turbine develops 520 shaft horsepower.

Each main propelling unit consists of four impulse turbine wheels connected to a single propeller by a two pinion, single case double reduction gear. The high pressure ahead turbine rotor is mounted on the aft end of the inboard pinion shaft. The intermediate pressure rotor is mounted on the forward end of the inboard pinion shaft. The low pressure



Arrangement of the New Ford Canal Freighters Edgewater and Chester-In Service Through New York Barge Canal

rotor is mounted on the forward end of the outboard pinion shaft. The astern rotor is mounted on the aft end of the outboard pinion shaft. Both pinions mesh with the same high speed gear and are placed on an angle of 45 degrees to the centerline of the gear. Steam for ahead power passes through the high pressure ahead turbine, then the intermediate pressure turbine, then the low pressure turbine and thence to the condenser. The astern turbine exhausts directly into the condenser; therefore when operating ahead, the astern turbine rotor revolves in a vacuum and vice versa.

When operating with steam at 385-pounds pressure at the throttle, 200 degrees Fahrenheit superheat and exhausting at 27 inches vacuum, the ahead turbines will develop 800 shaft horsepower on each propeller shaft running at 250 revolutions per minute. With the same steam conditions, each astern turbine will develop 65 per cent of ahead power when operating astern at approximately 7000 revolutions per minute. The normal full speed of the turbines is 6979 revolutions per minute which gives a propeller speed of 250 revolutions.

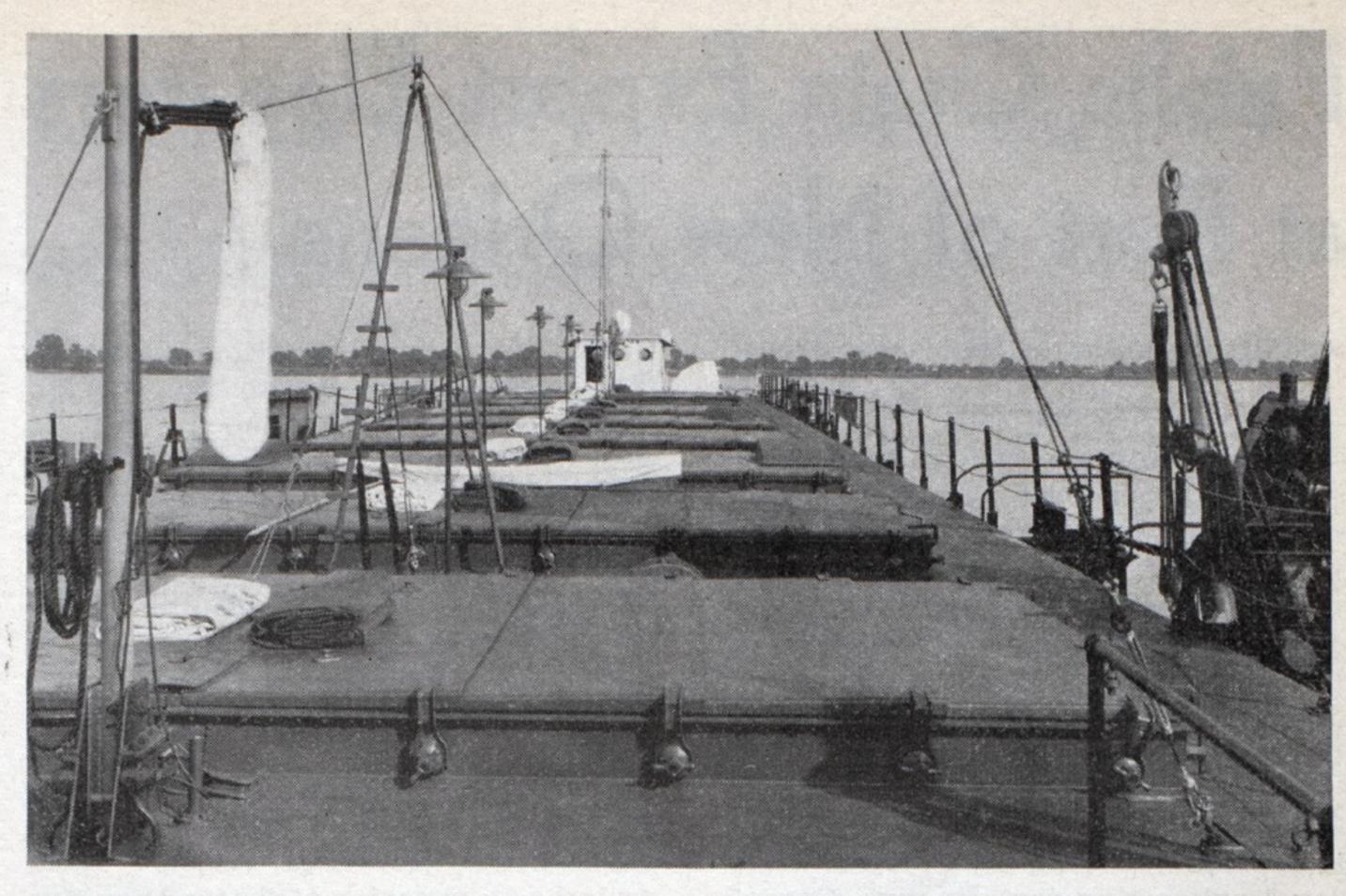
The steam generating units have boilers of the two-drum type equipped with soot blowers and are baffled to provide for two pass travel of the gases. Each boiler contains two banks of tubes of 1 inch diameter each and the first row of the lower banks which are 2 inches in diameter. With the exception of a small front refractory wall in which two oil burners are set, the furnace is entirely water cooled with tubes of the fin type.

The furnace volume of 400 cubic feet permits a heat liberation of 31,-000 B.t.u. per cubic feet per hour when the unit is generating at the rate of 10,000 pounds of steam per hour. Both the side and rear wall furnace tubes are 3 inches outside diameter with 1-inch fins. The centerline spacing of the tubes is 5\% inches.

A radiant type Foster Wheeler superheater is located in front of the tubes forming the rear furnace wall, the superheater elements connecting to headers outside the wall at the upper and lower points. The elements pass between the fin tubes into the furnace to a point 9 inches in front of the wall tubes. The superheater elements are a special alloy material to withstand the high temperatures. The superheater is designed to produce 200 degrees superheat at a steam pressure of 425 pounds.

Immediately above the upper row of the top bank of boiler tubes is the economizer, which is designed to raise the water temperature from 212 degrees Fahr. to 275 degrees at the 10,-000-pounds evaporation rate.

The feed pumps are turbine driven vertical three stage centrifugal type working at full boiler pressure and 10 pounds per square inch back pres-



Ford Canal Freighter Edgewater-Sliding Steel Hatch Covers

sure. They have a water capacity of 60 gallons per minute at 550 pounds per square inch. The feed water heater is a 120 square-foot Westinghouse type capable of raising the feed water to 230 degrees Fahr. built for a working pressure of 550 pounds per square inch.

Induced draft is furnished by two turbine driven propeller type fans operated at full boiler pressure, providing 20,000 pounds of gas per hour at 500 degrees Fahr. against 3¾ inches static pressure.

A Copes feed water regulator is fitted to each boiler as well as a Smoot control to regulate the fuel oil and induced draft.

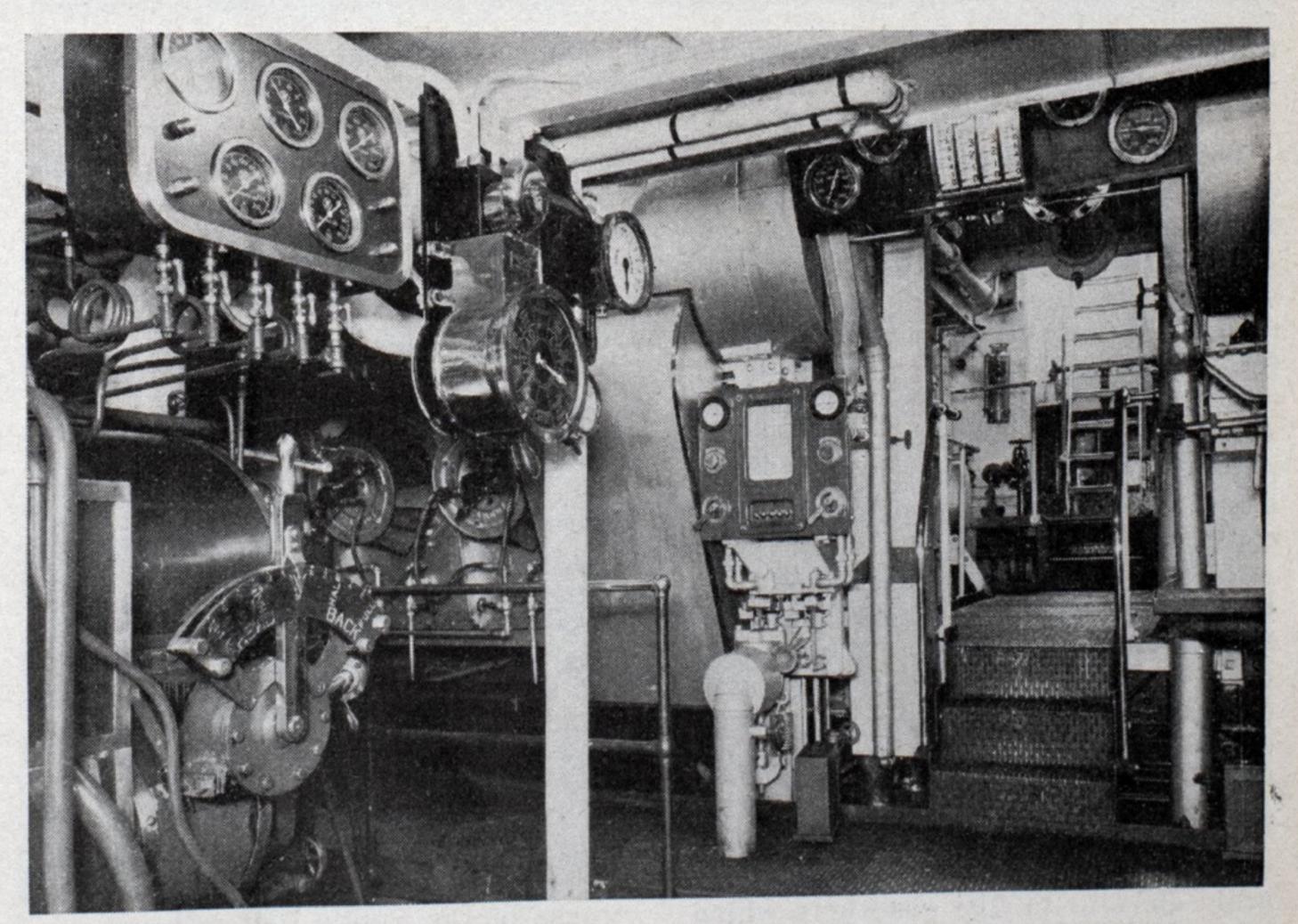
The vessel is equipped with four Johnson-Jett automatic tension winches for handling in the locks, each driven by a 20-horsepower motor. The steering gear, of Benson make, is of the transverse screw gear type sterom-

etor with motors in duplicate. This is controlled electrically from the pilot house and on deck aft of the pilot house. Each duplicate motor is 20 horsepower.

Two Benson warping winches are located at the bow and stern driven by 10 horsepower compound wound motors. These winches are used particularly in the locks where the vessels have minimum clearances.

The holds, three in number, are served by nine hatches with telescopic steel covers opened or closed by two motor-driven winches. Each hatch is 12 x 24 feet.

Equipment in the pilot house consists of main engine controls, magnetic and gyroscopic compasses, dual steering gear, telegraphs, controls for the hydraulic ram used to drop the stack, searchlight controls, a chart table and controls for lowering the pilot house.



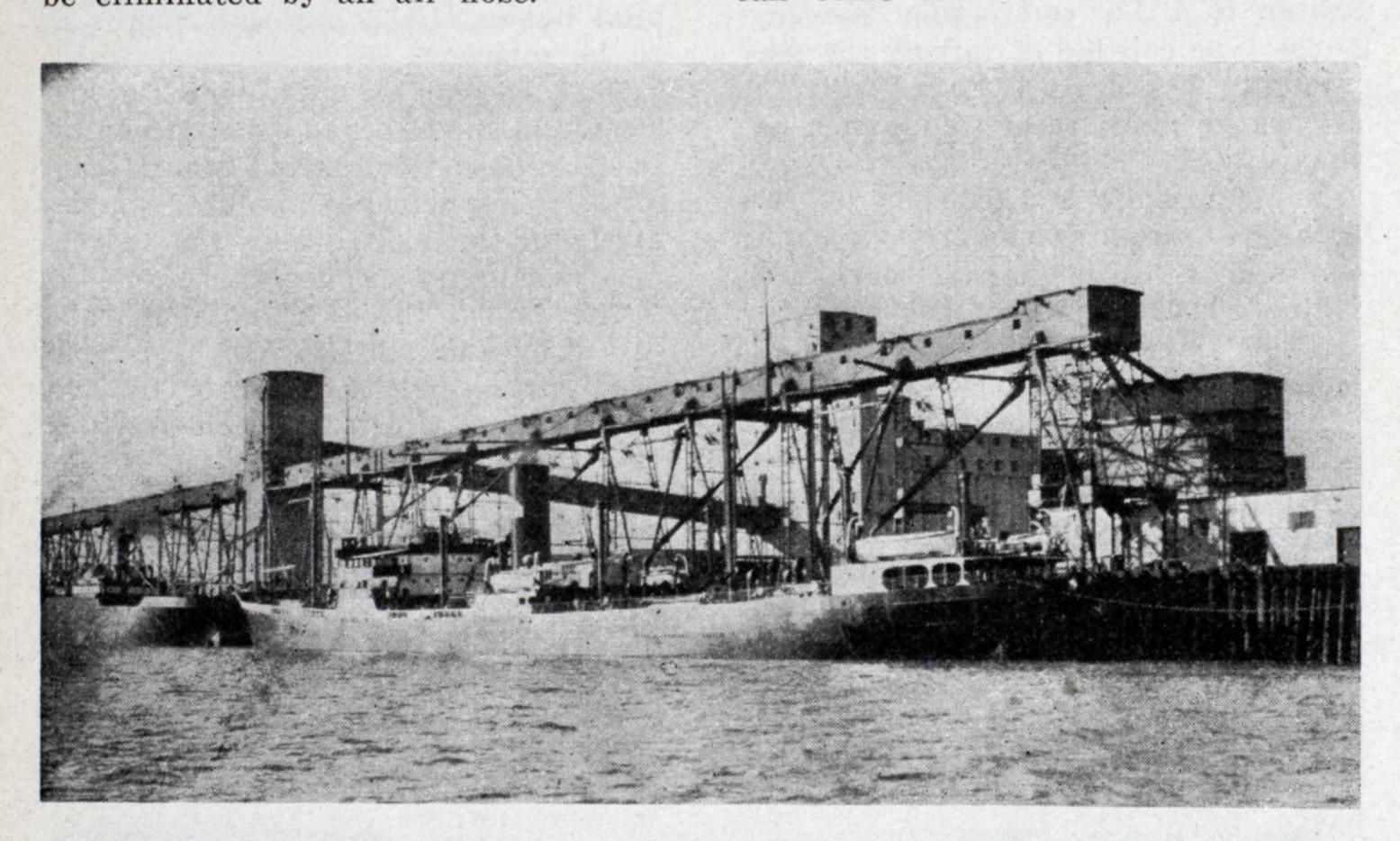
Main Engine and Boiler Rooms S. S. Edgewater-Looking Aft

# Public Grain Export Elevators at Port of New Orleans

HE most distinctive characteristic of the public grain export elevator at New Orleans is the landscaping of lawns, roadways and walks, demonstrating that a great waterfront utility can present an attractive appearance while providing for the practical demands of ocean commerce. That the decorative efforts should include song birds may seem strange, but their presence is primarily a safeguard to the lives of elevator employes. They have been the means of saving human life on innumerable occasions, and are indispensable, being used almost every day for detecting gases in deep storage bins and particularly where low quality corn or oats have been stored. As soon as the dangerous condition is known to exist, all gases can speedily be eliminated by an air hose.

From the marine leg to the sacking plant, the creosoted timber wharf is 2090 feet long and none of this frontage is used for any other purpose. There are five berths—one for discharging barges or ocean vessels at the marine leg, one for loading at the sacking plant, and three for loading bulk grain under the spouts.

At the sacking wharf, the grain is brought direct from the conveyor system to hoppers located in the wharfshed, where there are four highspeed Richardson automatic scales. Each scale has a capacity of better than one thousand bushels an hour, while the sacking wharf itself has a transit storage capacity of 250,000 bushels of sacked grain. Steamers of any draft can come to this berth. There are



S. S. TJIBESAR Loading Record Cargo of 501,000 Bushels Wheat at Public Elevator, New Orleans

The air hose is a part of the aircompressor system by which air is piped to every part of the plant, including the conveyors, the marine leg and the sacking wharf. Air is used for blowing off the walls and for cleaning the 90 motors, which range from one horsepower to 150 horsepower. Accumulation of dust is prevented, eliminating the dangers of dust explosion. It also operates a Peterson pneumatic car-door breaker (opener), which reduces to a minimum the amount of time necessary for breaking into a car. By the use of this device it never requires more than two minutes to open up a car, and there is also the advantage of saving the grain doors, which, by usual methods, sometimes are destroyed.

It is doubtful if there is any export grain elevator facility elsewhere which has so large a frontage devoted exclusack-sewing machines which enable all grain to leave the wharf in a machinesewn bag.

#### Elevator Of Large Capacity

The main elevator structure, with a storage capacity of 2,622,000 bushels, was placed in operation in 1917 and is located on the east bank of the Mississippi, just above the public cotton warehouse. Construction is of reinforced concrete and is fireproof. A complete dust collecting system, supplemented by the compressed air, makes dust accumulation impossible and eliminates any posibility of explosion.

Operated under a published tariff, it is open on equal basis to all railroads and to all water carriers entering the port of New Orleans, and is served by tracks of the Public Belt railroad.

The unloading shed for freight cars

is equipped with eight receiving pits, each capable of holding 2000 bushels, and, on a ten-hour basis, the elevator has an unloading capacity of from 160 to 180 cars per day—or better than 200,000 bushels. This is exclusive of marine-leg unloading capacity.

New Orleans is the only port on the Gulf of Mexico that has a grain elevator marine leg and it is unusual because it must accommodate a rise and fall of approximately 22 feet in the river stages, and has to handle grain out of a great variety of craft, ranging from the lowest river barges to the largest steamships which enter the port. These requirements were met by a special design of belt-and-bucket conveyor operating in an enclosed steel lofter, the leg proper, which is suspended from a boom attached to a cross-head that can be raised or lowered or moved horizontally as river stages may require, and as may be required by the variable heights of vessels and locations of hatches. After being elevated in the lofter the grain is spouted by gravity to a system of conveyor belts and lofters which carry it a distance of 1300 feet into the main elevator. The cost of this facility was approximately \$300,000.

At the marine leg wharf electric capstans are installed for the expeditious mooring and moving of non-propelled vessels. The dock board have another marine leg at the I. C. Stuyvesant elevators, where similar large horizontal and vertical movement was attained by a design consisting of a traveling counter-balanced leg and boom, with practically equivalent operating efficiency. In either case all operations are controlled by one man.

The marine leg at the public grain elevator has a maximum of unloading capacity of 15,000 bushels an hour, and an average working record on barges approximating 7500 bushels an hour. Since it was installed in October, 1918, this leg has handled nearly 73,000,000 bushels of barge grain, in addition to several million bushels of import Argentine corn arriving in ocean steamers. The record year was 1925, when the leg handled 11,000,000 bushels, of which 9,500,000 were wheat.

The public grain elevator is equipped with Carter disk separators. It has four of these separators of 250 bushels capacity each. This equipment is used for the separation of different kinds of grain one from the other, and for the removal of dockage. It is used a great deal, and particularly is being utilized for the removal of corn, oats and other foreign substances from rye shipments.

For reconditioning grain, the public grain elevator has a Morris dryer of two units, each of 1200 bushels capacity. At the Stuyvesant docks elevators, there are two Hess dryers of six units, each unit with a capacity of 500 bushels.

The board of commissioners of the Port of New Orleans, in addition to operating their own public grain eleva-

tor, also have under lease for operation the Illinois Central railroad's elevators D and E at Stuyvesant docks. These two elevators have a storage capacity of 2,500,000 bushels. The board thus operate a total storage capacity of 5,122,000 bushels.

There are seven loading berths at the Stuyvestant elevators, so that with the three at the public elevator, the board actually have berths at which ten vessels may be loading cargoes of grain simultaneously. These ten berths are equivalent to the total number of grain loading berths at all other Gulf ports combined.

Methods and mechanism for storage and conveying are of the usual modern standards, and grain is carried from the bins to the spouts, or into the bins from the marine leg, by rubber belts. All mechanism at the public grain elevator is electrically actuated and controlled and the delivering capacity can be varied from 25,000 to 100,000 bushels an hour, delivered either to one steamer or to three steamers, it being possible to accommodate the spouts to service on a single steamer with the full delivery capacity. At the Stuyvesant docks the delivery capacity is 20,-000 bushels an hour to each of seven steamship berths—140,000 bushels an hour if delivered to seven steamships. The combined delivery capacity of the public operated elevators is, therefore, 240,000 bushels an hour to eight or ten steamships loading bulk grain.

Car storage capacity in the public grain elevator yard will accommodate approximately 800 cars of grain; that at the Stuyvesant dock approximately 1000 cars. The unloading tracks at the public grain elevator are ideally laid out, four tracks entering the unloading shed with a capacity of twenty cars each, ahead of the unloading, with an unlimited storage capacity beyond, so that there is never any delay in unloading.

The biggest record turn-over of grain at the public grain elevator is 788,000 bushels in-and-out for a single day. The largest cargo of wheat ever loaded from this elevator was 501,000 bushels on the Dutch S. S. TJIBESAR, in January, 1925—the largest ever moved from the Gulf and the second largest from any port of the United States.

Operating offices are located at the plant and matters pertaining to operation are handled there on the grounds through well equipped buildings which are furnished with all modern conveniences. The central building of this administrative plant contains the superintendent's office and the desks of his clerical staff. The grain laboratory connecting with this central office by a beautified pathway is one of the best equipped laboratories in the United States. All grain arriving at the elevator is immediately inspected and graded at this building and in the elevator, and from reports on these inspections, consignees are informed promptly concerning each shipment.

# Launch Ferry Knickerbocker at Staten Island Plant

The new ferryboat Knickerbocker, built for the Department of Plant and Structures, New York City was launched Sept. 1, at the Staten Island plant of United Dry Docks Inc. Mrs. William H. Walker, sister-in-law of Mayor Walker, acted as sponsor. The launching was under the supervision of Albert Goldman, commission of plant and structures. The new vessel represents a high point in ferryboat design and construction and embodies a number of improvements with respect to strength, safety and other essentials.

The Knickerbocker is a double ended steel, oil burning vessel fitted with all modern safety appliances. The dimensions are as follows:

Length over all	267	ft.	0 in.
Breadth over guards	68	ft.	0 in.
Breadth of hull molded	46	ft.	0 in.
Depth of hull molded			
at side amidships	19	ft.	91/8 in.
Draft loaded			THE ROLL OF THE PARTY OF THE PA
Displacement loaded	1785	tor	ns
Speed 1			

Two decks are provided with passenger accommodations on each and affording seating capacity for 1700. In addition, there are two gangways for the accommodation of 32 vehicles. The ferryboat is built to class 100 A-1 American Bureau of Shipping. Robert W. Morrell was the naval architect. The contract was awarded in December 1930 at a price of \$941,000 and was originally scheduled for completion in October 1931.

The main engines are two vertical direct acting two cylinder compound surface condensing engines  $22\frac{1}{2} \times 50$  x 30 inches, developing 4000 horsepower. They were built by United

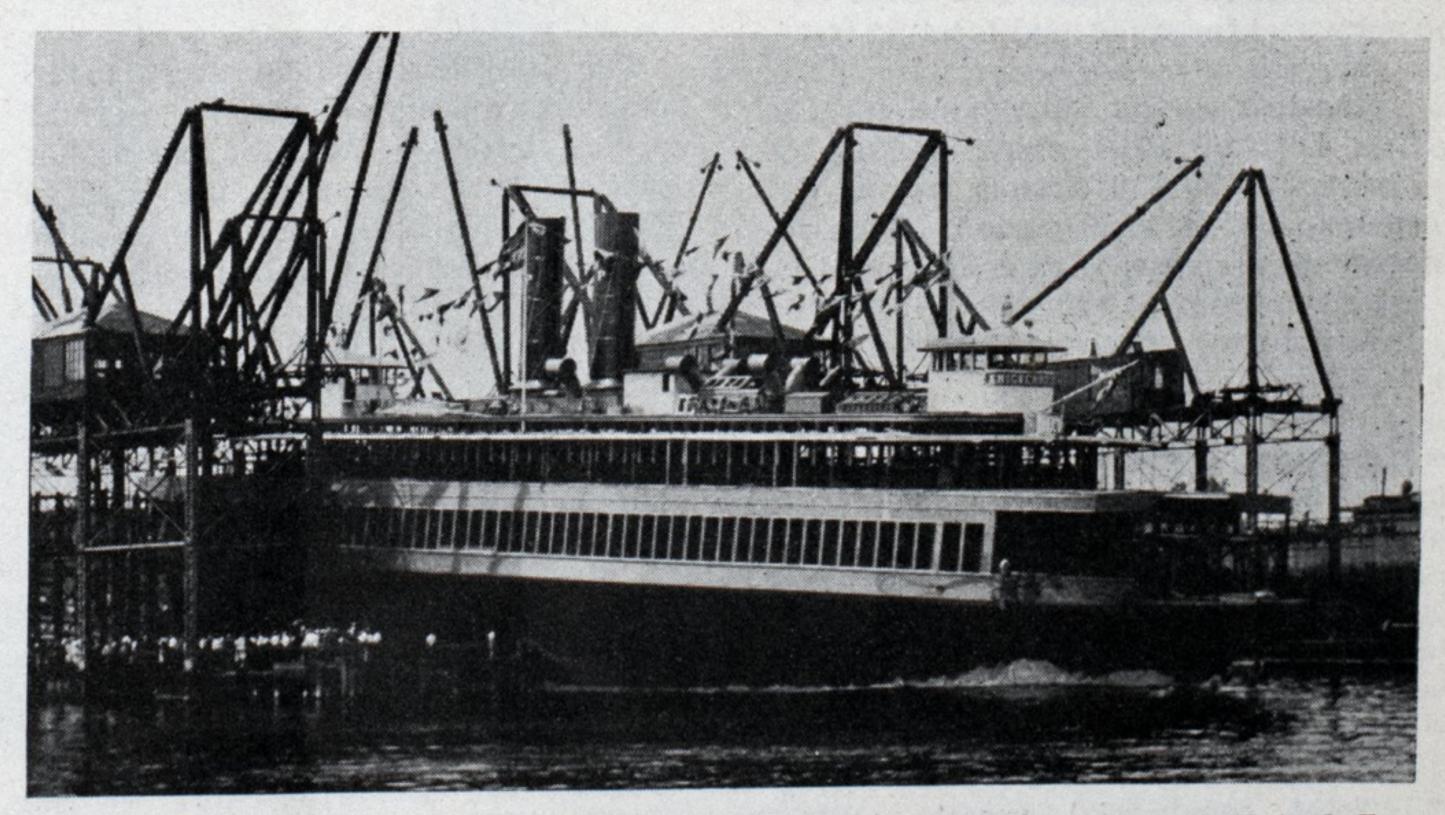
Drydocks Inc. These engines derive steam from four Babcock & Wilcox sectional marine watertube boilers of 3577 square feet of heating surface, burning oil as fuel. Auxiliary pumps were supplied by the Worthington Pump & Machinery Corp. The vessel is equipped with two steering engines furnished by the Hyde Windlass Co. The two propellers were supplied by the General Steel Castings Co. Todd Dry Dock & Engineering Co. furnished the oil burning equipment. The electric generators were built by the General Electric Co.

Notable additions have been made to the New York City municipal ferry lines operated by the Department of Plant and Structures. Since Jan. 1, 1926 eleven new ferries have been placed in operation on ferry lines and in the institutional service, replacing four old ferries and three institutional boats which had been in use a number of years. Additions to the municipal fleet have been made necessary by the heavy increase in traffic.

The KNICKERBOCKER is a sistership of the Dongan Hills and the Thomp-KINSVILLE, all three vessels being practically identical.

#### Virgin Islands Shipping

President Hoover by proclamation September 3 deferred the extension of coastwise shipping laws to the Virgin islands from Sept. 30, 1931 to Sept. 30, 1932, declaring that such extension is dependent upon establishment of an adequate shipping service with the islands. This is the fourteenth time the extension has been deferred since the enactment of the merchant marine act of 1920.



Municipal Ferryboat Knickerbocker, Built at Staten Island Plant of United Dry Docks Inc. for Department of Plant and Structures New York City. Launched Sept. 1

### Todd Shipyards Purchase Jahncke Dry Docks

The Todd Shipyards Corp., New York, announced on Sept. 12 that negotiations had been completed for the acquisition of the dry docks and ship repair business of Jahncke Dry Docks, Inc., New Orleans, by the Todd Engineering, Dry Dock & Repair Co. Inc., New Orleans, a subsidiary company, the transfer becoming effective Sept. 21.

The Jahncke plant was established in 1918 and was headed by Ernest Lee Jahncke, now assistant secretary of the navy, and specialized in ship, engine and boiler repairs, and the conversion and reconditioning of ships. Included in its up to date equipment are two floating dry docks.

By acquiring the Jahncke yards the Todd Shipyards Corp. strengthens its position as one of the leading ship repair and dry dock organizations in the world. It has plants in Hoboken, Brooklyn, New Orleans, Mobile and Seattle, which operate a total of 24 floating dry docks, two graving docks and three shipways. It also operates the biggest dry dock in New York harbor.

#### Hold Annual Convention

The twenty-fourth annual convention of the Atlantic Deeper Waterways association will be held in Boston Oct. 5 to 9. Speakers at the convention will deal with the Atlantic Intracoastal waterway and its 5000 miles of connecting channels from New England to Florida, on which project considerable progress has been made. A discussion of general transportation problems will take place.

Headquarters of the association will be at the Hotel Statler, where the convention will be held. Featured in the entertainment program are several ocean trips, a daylight ride through the Cape Cod canal and various automobile sightseeing trips.

Receipts of the Suez canal for the first half of 1931 show a drop of about 60,000,000 francs below the corresponding 1930 period. This recession compares with a decline during the year 1930 of 78,000,000 francs below total receipts in 1929.

#### Panama Canal Tolls Drop

Panama Canal tolls for the six months from March 1 to Aug. 31 were \$11,342,498.

The war department states this was \$1,674,915 below the total of the previous year for the same period.

Total commercial vessels passing through the canal numbered 2516 as

compared with 2914 in the corresponding months of 1930.

The August totals showed 390 ships using the canal as compared to 476 last August. The tolls collected were \$1,770,202, against \$2,080,230

Over 7000 delegates are expected to attend the twentieth annual safety congress which will be held at Stevens hotel, Chicago, Oct. 12 to 16. As usual, the marine section will play an important part at this convention and an especially interesting program has been prepared. The list of papers to be read at the marine sessions was published in the September issue of Marine Review, page 20.

#### Launch All-Welded Tanker

The motorship White Flash, built for the Atlantic Refining Co., was launched Thursday, Sept. 10, at the yard of the Sun Shipbuilding and Dry Dock Co., Chester, Pa.

Miss Margaret Richardson, 15, a grandniece of J. W. Van Dyke, of New York, chairman of the board of the Atlantic Refining Co., acted as sponsor.

The White Flash will be put into service within a few weeks as a petroleum carrier. The vessel is 201 feet long.

A feature of the tanker's construction is that no rivets were used, the plates being welded throughout.

#### Mobile Oceanic Line Sale Contract is Approved

Approval of all terms and conditions of a contract of sale under which the Mobile Oceanic line is to be transferred to the Waterman Steamship Co., Mobile, Ala., was granted by the shipping board Sept. 9. The price to be paid for the line is \$1,108,080, payment to be made on the basis of 25 per cent down with the balance payable over a period of seven and one half years. Interest on unpaid balances will be at the rate of 4¼ per cent.

The line includes 14 steel cargo steamers and maintains a regular service between Mobile and other East Gulf ports and the United Kingdom, Ireland, and Continental European ports from Bordeaux and north. The contract of sale anticipates the reconditioning of 10 of the 14 vessels to give them a speed of 13 knots. The present speed of the vessels is 10 knots.

Under the terms of the sale, the Waterman Steamship Co. agrees to operate the line over the present route making not less than 52 outward voyages a year, of which not less than two shall be made in each and every month. As soon as the contract is signed, delivery of the vessels will be made as each vessel completes its current voyage.

### Rivals Are Urged to Unite On U. S. Lines

An entirely new solution for the operation of the United States lines was proposed by the shipping board on Sept. 21 at its legislative session when it suggested that the interests who have been competing for possession of the lines during the past three months, join forces in an attempt at reorganization. The board contended that such an arrangement would have a stabilizing effect on the American merchant marine. After the meeting, which was attended by representatives of the International Mercantile Marine Co., and the Chapman interests, a private conference was held between P. A. S. Franklin, Kermit Roosevelt, John M. Franklin, James F. Burke, Stanley R. Dollar, Kenneth D. Dawson, Paul W. Chapman and Joseph E. Sheedy to consider the board's proposal. While no agreement was reached in this conference, it is believed further meetings will be held by the group.

The board has had under consideration the reorganization proposal of the Chapman interests which provides that the liners America and George Washington be turned back to the shipping board and the sum already paid toward these vessels be applied to the \$11,000,000 notes which the board holds against the company. These notes later will be sold to the Chapman group for more than \$3,000,000 as the board has admitted that Mr. Chapman paid too much when his original bid of \$16,-032,000 was accepted.

The company also will be called upon to operate the Leviathan for at least seven round trips a year and to operate the two new liners now under construction at Camden in the North Atlantic trade. These new ships will be permitted to enter other services in off seasons only with the shipping board's permission.

#### Begin Work on Cruiser

Work has been started by the New York Shipbuilding Co. at its Camden plant on the new 10,000-ton cruiser Tuscaloosa, with the laying of the keel of the new craft recently.

This ship is the last of fifteen 10,000ton cruisers authorized by congress in 1924.

The cruiser will cost \$10,540,000 and will be completed some time in the spring of 1934. Ultimately 1000 men will be employed in the construction of the vessel.

The Tuscaloosa makes the fourth of the 10,000-ton cruisers constructed by the New York Shipbuilding Co.

Other work at the Camden yards includes the two giant transatlantic passenger ships being built for the United States lines.

### Build New Vessel to Aid in Study of Ocean Life

HE Woods Hole Oceanographic institution, newest of scientific organizations for the study of oceanography, was made possible by a recent appropriation of the Rockefeller foundation for its organization. Its director is Dr. Henry B. Bigelow of Harvard university, distinguished oceanographer and marine biologist, and curator of oceanography at the museum of comparative zoology.

Shortly after the organization of the institution, Dr. Bigelow retained Messrs. Owen and Minot, the Boston firm of consulting engineers and naval architects, to study the requirements for a vessel for oceanographic research and to prepare her design. In early July 1930 plans and specifications were completed and the contract for the vessel was placed with Burmeister and Wain of Copenhagen, Denmark—the great Danish shipbuilding and engineering firm and one of the largest builders of diesel engines in the world.

The ATLANTIS, designed primarily as a sailing ship for extended ocean voyages, is a steel auxiliary ketch with a Marconi rig and built to Lloyd's highest class and is probably the largest steel sailing vessel of its type and rig ever constructed. The vessel is 142 feet 6 inches long, 28 foot beam and 16 foot draft with a depth of 22 feet and a displacement of about 410 tons.

With an all inboard sail spread of about 7000 square feet and a propelling engine of 260 brake horsepower, a hull designed particularly for strength, seaworthiness and steadiness at sea, this vessel is specifically planned to perform her duties in ocean conditions. Quarters are provided for a master, two mates, three engineers, cook and mess boy, eight hands, a chief scientist and. four assistants and a number of scientific students. An above deck and below deck laboratory afford facilities for scientific work, and a wheelhouse provides shelter for the helmsman and officer of the watch. In order to tow delicate nets and other scientific gear at extremely low and steady speeds, the main engine is connected to an adjustable blade propeller, which allows the most accurate speed adjustment while the engine turns at constant revolu-

tions. The engine, which is the Bur-Lidgerwood Mfg. Co., to carry 30,000 the starboard side of the vessel, ing devices.

In addition to the main trawling winch a smaller electric winch of special design is fitted on the quarter deck for hydrographic work, as are sounding machines and other scientific appliances for ocean work.

The sea trials of the Atlantis

meister & Wain's two cycle direct scavenging mechanical injection type, also actuates a 60 kilowatt direct current generator of Westinghouse manufacture through a clutch and silent chain drive, and so furnishes power for the principal tool for scientific work on board. This is a single drum electric winch developed by the designers and the feet of 1/2 inch flexible wire for work in ocean depths. This winch is controlled from a station amidships on where the winch man has in view a spring type dynamometer which records the tension on the warp and a sheave which records the amount of warp overboard. The winch is fitted with a slipping friction which releases at any desired tension and an automatic reversing switch which reverses the motor when a critical load is encountered. The wire warp is led overboard at the main rigging by a boom fitted with special shock absorb-

Auxiliary Ketch Atlantis Built by Burmeister & Wain, Copenhagen, for the Woods Hole Oceanographic Institution

were held in the sound between Denmark and Sweden June 18. Over an official measured course the vessel attained a speed of 9.8 knots under power alone with full equipment and some fifty guests on board and on a displacement of 412 tons. The fuel consumption at full power on the main engine alone was .383 pounds per brake horsepower per hour and for all purposes .445 pounds per brake horsepower per hour.

#### Limited Liability Is Denied In Vestris Disaster

Owners of the ill-fated liner VESTRIS, which sank Nov. 12, 1928 with the loss of 110 lives, were denied a limited liability of \$90,000 in a ruling made in Federal court on Sept. 17. Judge Henry Goddard held that 600 claimants were within their rights in bringing suits for sums aggregating \$5,000,000. The owners of the line, the Liverpool, Brazil & River Platte Navigation Co., Ltd. and Lamport & Holt, Ltd., sought to have their liability limited to \$90,000, the value of the cargo sunk with the vessel.

The litigation against the Vestris owners is of a peculiar status since most of it will be tried in American courts, yet the law under which it is tried is British law. The court held that the British statutory provision which provides that the plimsoll, or waterline mark, must remain above water when fully loaded, did not apply when the VESTRIS left New York, following inspection here, for Buenos Aires, Nov. 10, 1928. The plimsoll

> mark could not be seen when the boat cleared, New York witnesses said. Judge Goddard ruled against scattered claimants who filed belated suits against the owners and operators of the boat, holding that such claims, many of which were filed 12 months after the catastrophe, were barred by the provisions of the socalled Lord Campbell's act in British Admiralty. It is under this act that actions brought to trial here must be administered, he said. Although he refused to limit liability, Judge Goddard found it unnecessary to pass upon the allegations of the steamship corporations that a storm had wrecked the vessel and that they therefore were not responsible for the sinking of the vessel and the resultant loss of life. Lord Campbell's act, he said, provided the necessary jurisdiction. He ruled that the American limitation act could not apply.

### Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

CCORDING to the monthly report of the department of commerce, Washington, American shipyards on Aug. 1, were building or were under contract to build for private shipowners 100 vessels aggregating 325,620 gross tons, compared with 105 vessels aggregating 358,904 gross tons on July 1. Of the 100 vessels under construction, 23 ships were steel self propelled of over 1000 gross tons.

The Bethlehem Shipbuilding Corp. had six vessels under construction: two passenger and cargo ships of 17,-500 gross tons each for the Oceanic Steamship Co.; three passenger and cargo vessels of 7200 gross tons each for the United States Mail Steamship Co.; and one tanker of 1534 gross tons for the Standard Transportation Co. The Federal Shipbuilding Co. was building four passenger and cargo ships of 11,000 gross tons each for the Grace line. The Newport News Shipbuilding & Dry Dock Co. had under construction seven vessels: Two passenger and cargo ships of 21,900 gross tons each for the Dollar Steamship Co.; three passenger and cargo ships of 7500 gross tons each for the United Mail Steamship Co.; and two passenger and cargo vessels of 5700 Steamship lines. The New York Shipbuilding Co. was building two passenger and cargo ships of 30,000 gross tons each for the United Line Inc. The Sun Shipbuilding & Dry Dock Co. was building four tankers of 9000 gross tons each for the Motor Tankship Corp.

The Mississippi Valley Barge line,

Ohio River points, will shortly receive bids for the construction of 10, 20, 30 or 40 steel barges. These barges are to be of special design for the Mississippi River service.

#### Hear Loan Applications

A hearing on application from the General Motorship Corp. for loans to be used in aid of reconditioning the motor vessel CLEVELAND, formerly the Twin Ports was set by the shipping board for Sept. 22.

On the same date, hearings were granted on applications for loans in aid of building vessels for the Overseas Railway, Inc., and the Gulf-Pacific line. Of these two, the former is an applicant for a loan on a freight car carrier to be operated under an ocean mail contract between New Orleans and Havana and the latter is an applicant for loans on two ships to be built for the Gulf-Pacific trade.

The Sun Shipbuilding & Dry Dock Co. is reported low bidder on one of two vessels for this company. The New York Shipbuilding Co. is low bidder on the other.

#### Shipping Board Authorizes Construction Loan

Loans aggregating \$1,725,000 in aid of building two steel passenger cargo steamers for the Colombian Mail Steamship Corp. of New York in compliance with its ocean mail contract operating between New Orleans and were authorized by the shipping board

Sept. 16. The vessels are to cost \$2,300,000 each, and the loans will be for three-fourths the construction cost under the terms of the Jones-White act.

Repayment of the loans will be made over a 20-year period, with interest at the lowest legal rate, payable semiannually. The vessels are to be built at the Newport News Shipbuilding & Dry Dock Co.

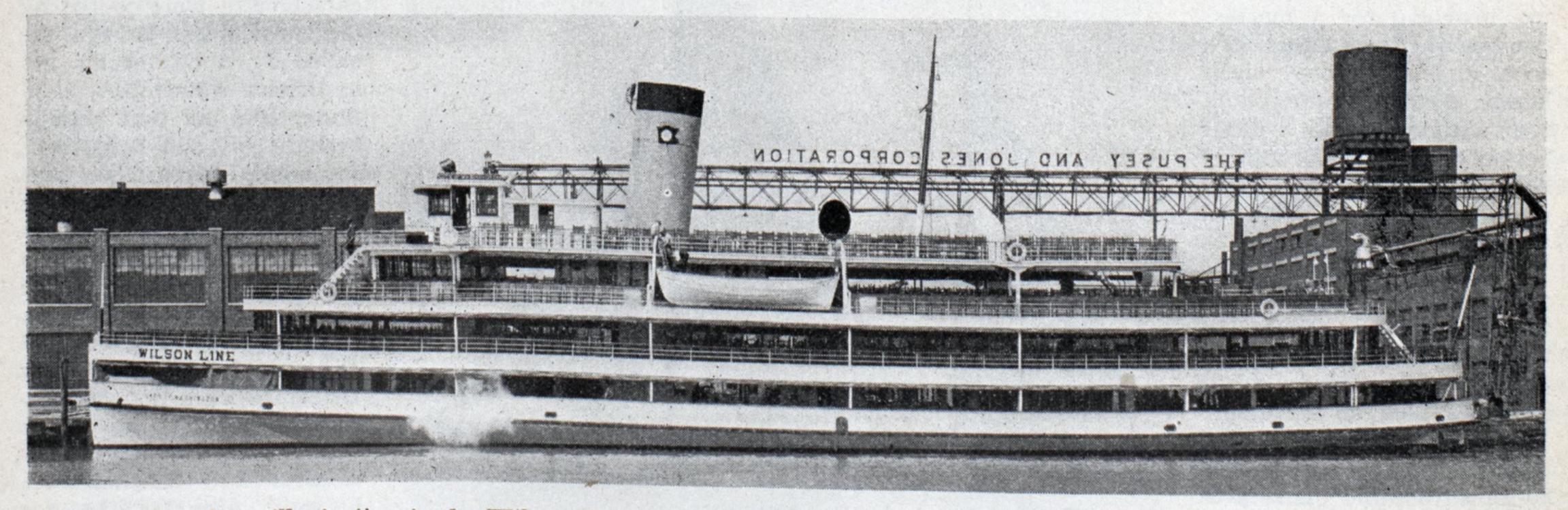
The vessels will be combination passenger and cargo steamers especially designed for the Colombian line's service from New York to Puerto, Colombia.

They will be 404 feet 3 inches in length 57 feet 6 inches beam, and 23 feet 6 inches draft, with a total deadweight of 4400 tons. They will be equipped with geared turbine propelling machinery having a normal shaft horse power of 6500 and a speed of 16 knots. A total of 54,000 cubic feet of refrigerated space will be provided for carrying fruit and other perishable cargoes.

#### Ferryboat Jersey Shore

The new automobile ferryboat Jer-SEY SHORE, built for the Delaware-New Jersey Ferry Co., Wilmington, Del. by the Pusey & Jones Corp., successfully met all requirements on her trial trip Sept. 2. Invitations to the trial trip had been issued by the owning company and a number of prominent marine men attended.

The new vessel is now in operation on the Delaware river between Newcastle, Del. and Pennsville, N. J. An average speed of 131/2 knots was attained for four trips over a measured



Shown in the above illustration is the Wilson line steamer City of Washington which burned to the water's edge early this summer. The vessel was completely reconstructed at the yard of Pusey & Jones and back in service in the short time of 60 days. The vessel was improved in many details in the rebuilding. The City of Washington is licensed to carry 2200 passengers on the Potomac river and operates at a speed of 16 to 18 miles per hour. An item on the reconstruction appeared in the June issue of Marine Review

mile. The Jersey Shore is of steel construction and is 206 feet in length overall with a beam of 58 feet overall and a depth of 9 feet 6 inches molded. She has capacity for 75 automobiles.

The main propelling machinery is one double-ended, double-clutch fourcycle, single acting, solid injection Washington diesel engine, developing 925 brake horsepower at 200 revolutions per minute. The engine has eight cylinders, is nonreversing and drives a propeller at each end of the vessel through a one-way clutch and thrust bearing at each end of the engine. The clutches are inter-connected and operate through a single air control mechanism. Only one clutch is engaged at a time, the vessel being driven in one direction with a righthand propeller and reversed when necessary for maneuvering by engaging the left-hand propeller at the other end.

This is said to be the first double clutch ferry on the Atlantic coast driven by a single non-reversing engine and her operation will be watched with interest by all ferryboat operators. This powerful diesel engine, weighing 95 tons, was built by the Washington Iron Works and shipped from Seattle to Wilmington, Del. where it was installed by the owning company.

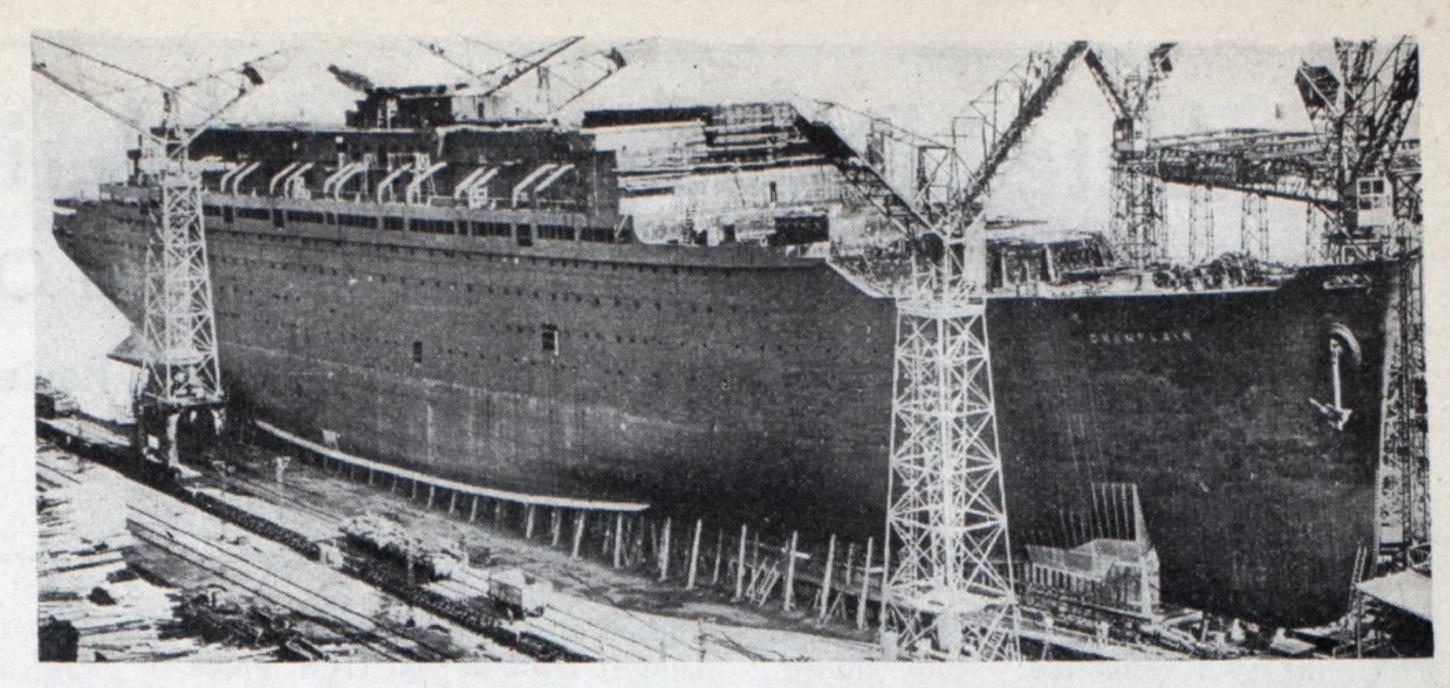
#### Ask Bids for Dredge Tender

Sealed bids will be received at the United States engineer office, Vicksburg, Miss., until 11 a. m. Oct. 2, 1931, and then opened, for constructing and delivering afloat at Vicksburg, one 51-foot 3-inch steel hull, diesel engine driven dredge tender.

### Bids Submitted for Building Ten New Destroyers

Bids for the construction of ten of the eleven 35-knot destroyers authorized in 1916, appropriations for beginning the construction of which were made by the last congress, were opened at the navy department Sept. 16.

Only the bids of private shipyards



New 28,000-ton French line steamer Champlain, flagship of the one-class cabin fleet. launched recently at Penhoet shipyards, St. Nazaire

were made public. The bids of the navy yards, because of difference in the estimating of costs, will be made public later.

Bids submitted for construction according to navy department specifications and others for work in which the builder may make certain modifications were as follows:

Bath Iron Works Corp., Bath, Me.—Department design: One in 30 months \$2,626,000; two, in 30 and 33 months \$2,380,000 each. Builders design: One in 30 months, \$3,166,000; two, in 30 and 33 months, \$2,931,000 each.

Bethlehem Shipbuilding Corp., Quincy, Mass.Department design: One, in 24 months, \$2,893,000; two destroyers, 24 and 26 months, \$2,615,000 each. Builder's design: One in 26 months, \$3,044,000; two destroyers, 26 and 28 months, \$2,738,000 each.

Maryland Drydock Co., Baltimore—Department design: One in 3 months, \$3,804,982; two destroyers, 30 and 33 months, \$3,664,433 each.

Newport News Shipbuilding & Drydock Co.—Department design: One in 27 months, \$3,040,000; two destroyers, 27 and 30 months, \$2,660,000 each. Builders design: One in 27 months \$3,080,-000; two in 27 and 30 months, \$2,700,-000 each.

New York Shipbuilding Co., Camden—Department design: One in 25 months, \$2,925,000; two in 25 and 28 months, \$2,675,000 each.

Pusey & Jones Corp., Wilmington, Del.—Department design: One in 26 months, \$2.895,000.

United Dry Docks Inc., New York—Department design: One, 20 months, \$2,645,000; two, 20 and 22 months, \$2,500,000 each. Builders design: One in 27 months, \$2,720,000; two, 20 and 22 months, \$2,570,000 each; or one, 20 months, \$2,900,000, two, 20 and 22 months, \$2,900,000, two, 20 and 22 months, \$2,630,000 each; or one, 20

months, \$3,020,000; two, 20 and 22 months, \$2,680,000.

The bids quoted are for hull and machinery only. Ordnance equipment probably will cost about \$1,-500,000 per vessel.

The destroyers, the first to be built for the navy since the close of the World war, are to be of 1500 ton's displacement. They will have a greater cruising radius, more speed and heavier armament than any similar vessels ever built for the navy.

#### French Line Launches Liner

In the presence of a distinguished gathering of leading political figures, shipping and ship construction officials and representatives of the press, the new 28,000-ton French line steamer, Champlain, which will enter the New York-Plymouth-Havre service as flagship of the one-class cabin fleet next spring, was launched recently at the Penhoet shipyards in St. Nazaire.

The new steamer, named after Semuel de Champlain, famous XVI century French explorer, navigator, founder of Quebec and first Governor of New France, or Canada, has a gross tonnage of 28,000 tons, a displacement of 28,627 tons, a between-perpendicular length of 607 feet, an overall length of 650 feet. Her beam is 83 feet, and on her promenade deck, with the overhang which is a distinctive feature of all the French liners, she has a breadth of 86 feet. She will develop 25,000 horsepower.

			Bunker Prices			
At Ne	w York		At Phil	adelphia		Other Ports
Coal alongside per ton Sept. 18, 1931. 4.75@5.00 Aug. 18	Fuel oil alongside per barrel .75 .75 .85 .90 1.00 1.10 1.10 1.10 1.10 1.10 1.10	Diesel engine oil alongside per gallon 3.47½ 3.47½ 3.72½ 3.72½ 4.08 4.32 4.55½ 4.55½ 4.55½ 4.55½ 4.55½ 4.55½	Coal trim in bunk per ton  Sept. 18, 1931.4.75@5.00 Aug. 184.75@5.00 July 184.75@5.00 June 184.85@5.25 May 184.85@5.25 Apr 1 184.85@5.25 Feb. 184.85@5.25 Jan. 184.85@5.25 Nov. 18, 1930.4.85@5.25 Nov. 18, 1930.4.85@5.25	Fuel oil alongside per barrel .75 .75 .85 .90 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Diesel engine oil alongside per gallon 3.45 3.45 3.70 3.80 4.4 4.60 4.88 4.88 4.88 4.88 4.88	Boston, coal, per ton \$7.88 Boston, oil, f. a. s., per barrel

### Late Decisions in Maritime Law

#### Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review
By Harry Bowne Skillman

Attorney at Law

A has two remedies: One, under the new rules, which extends the common-law right of remedy in cases of personal injury, etc., to recover compensatory damages for negligence; or, under the old rules, for liability for injury to a seaman in consequence of unseaworthiness of the ship, "usually consisting of wages and the expense of maintenance and cure"—a contractual right. —Keefe v. Matson Navigation Co., 46 F. (2d) 123.

(2d) 345, it was held that a tug violating a navigation rule by going up a river on the left side was presumptably at fault for an ensuing collision; that a tug coming down river with the ebb tide to starboard of another tug was not at fault in signaling tug approaching on left side of river for starboard passage; and that the tug acceding to the starboard passage signal of the approaching tug was at fault in not promptly starboarding or straightening up more.

Though laws for the protection of the rights of seamen should be liberally construed, yet it was held in the case of Foster v. United States, 46 F. (2d) 359, that the federal statute authorizing suits by seamen without prepayment of or bond for costs is inapplicable to suits by administrators of deceased seamen to recover for their death.

THE decision of the captain of a tug to proceed is not negligence unless nautical experience and good seamanship would condemn it at the time and under the circumstances, and his failure to look for storm warning was not of itself sufficient to constitute negligence; however, in the case of KATIE E., 46 F. (2d) 534, it was held that the captain of a tug was negligent in proceeding without seeking complete information as to hazards that lay proximately in his course.

A COMMON carrier is not bound to know grade marks; or to take any note of any marks on packages, even of stowage directions on them; nor is he bound to inquire into the nature of the goods shipped.—Buenos Aires, 46 F. (2d) 693.

IT IS elementary, it was brought out in the case of Bulter v. Ellis, 45 F. (2d) 951, that the wages of seamen are a primary lien upon a vessel which, as has been said, "adheres to the last plank." In this case it appeared that a dredge was not only afloat, but was de-

signed and equipped for navigation and that it transported from place to place machinery used in dredging and was engaged in opening up a channel for navigation. It is well settled that under these circumstances it was a vessel within the meaning of the admiralty law, and, as such, subject to liens for wages and supplies.

THE general rule is that the owner of a ship shall not wilfully or wantonly injure a licensee on board, or expose to hidden perils, or fail to use due care to prevent injury to him after discovering that he is in danger.—Kosba v. Bank Line Ltd., 46 F. (2d) 119.

TUG taking a barge out of tow to moor because of her leaking condition is bound to exercise the skill and care a prudent navigator would employ in like circumstances, for the bailment continues until the service contracted for is performed or performance excused. The duty the tug owes the barge is not fulfilled by tying her up and leaving her to sink unless reasonable care will not prevent her sinking at all. Abandonment to sink at a pier, before all reasonable efforts to keep her afloat are exhausted, is a breach of duty imposed by law, and the tug is liable for loss from sinking attributable solely to failure to exercise due care, regardless of the barge's unseaworthiness.—Henry Du Bois Sons Co. v. Pennsylvania Railroad Co., 40 F. (2d) 172.

THE law is firmly settled, it was declared in the case of Grammer Steamship Corp. v. James Richardson & Sons, Ltd., 47 F. (2d) 186, that a contract of affreightment which stipulates no date of delivery binds the shipowner only to prosecute the voyage with due diligence; while delivery must be made within a reasonable time, what is reasonable is to be construed in the light of the possibilities, and stoppage of the channel by ice is one of these. It was also held that while the parties expected delivery before the close of navigation for the season, expectation is not a warranty, and a statement by the carrier's agent that the steamer would get through before navigation closed for the season was a mere expression of opinion, not a warranty.

A STEVEDORE unloading a vessel had the duty of recognizing and guarding against danger to the lighter by reason of the propellers on the vessel, and the master of the lighter had the duty of seeing that his barge was moved safely and kept out of danger. Both the lighter and the

stevedore were liable for loss of cargo dumped from the lighter in an attempt to free itself from the vessel's propellers.—Teno, 47 F. (2d) 197.

DEMURRAGE arising from detention in dry dock, based upon embarrassment to the business in general of the owner of the vessel damaged in collision, is improper, said the court in the case of Glendola 47 F. (2d) 206, where no definite sum can be attributed to the detention. However, a vessel chartered after the damaged vessel was again placed on duty could be considered a substitute warranting allowance of hire as damages arising from the collision.

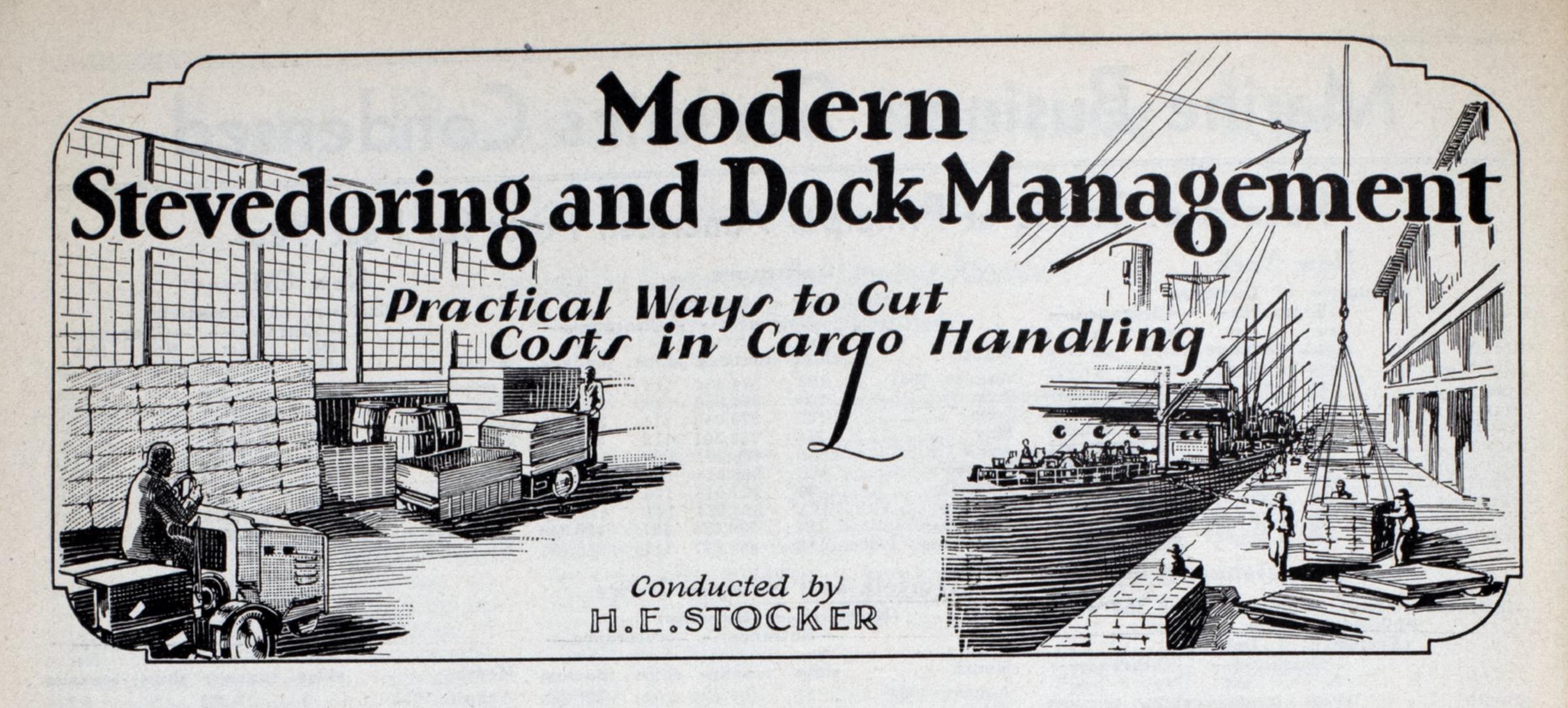
CHARTER, being prepared by a shipowner's agent, must be constructed contra proferentem; a clause, descriptive of the ship's speed capacity, a typed addendum to the printed form and prepared after negotiation ad hoc, cannot be ignored as a constituent part of the ship's duties. In the instant case, a description of speed capacity, "In addition to the particulars herein given, steamer is described as capable of steaming about 11 knots to 12 knots in good weather and smooth water on a consumption of about 32 to 34 tons best Welsh coal," was held to be a "warranty," notwithstanding the failure to use the word "warranty." This warranty, the court said, spoke from the time of delivery, and was satisfied if the ship was at that time "capable" of making the prescribed speed under the stipulated conditions. It did not follow that she would make it uniformly; that depended upon how she was driven, and whether she had become foul or disabled, even though the conditions were fulfilled. "On the other hand," the court declared, "the charterer might assume that it meant something of practical use to him; that it spoke of ordinary service at sea; and it is not relevant whether she later made the required speed under a test by the owner, as apparently she did. We are to inquire whether when laden as intended, she could speed at the stipulated speeds in good weather and smooth seas." Denholm Shipping Co., Ltd., v. W. E. Hedger Co., Inc., 47 F. (2d) 213.

as to make-up of a tow the tug is master, and the tow must follow her directions; plainly this must be so, unless a flotilla is to have a divided command, a thing not tolerable upon the water.—Margaret Irving, 47 F. (2d) 230.

### Marine Business Statistics Condensed

### Record of Traffic at Principal American Ports for Past Year

New York  (Exclusive of Domestic)  —Entrances——Clearances—	Baltimore (Exclusive of Domestic) —Entrances——Clearances—	New Orleans (Exclusive of Domestic) —Entrances——Clearances—
Month         ships         tonnage         ships         tonnage           July, 1931         538         2,626,814         563         2,754,107           June         541         2,747,134         526         2,596,749           May         478         2,434,601         511         2,542,351           April         496         2,538,201         527         2,656,992           March         494         2,396,654         489         2,323,422           February         439         2,127,771         484         2,261,468           January         486         2,417,338         542         2,533,711           December         539         2,497,454         521         2,454,917           November         485         2,194,780         470         2,144,883           October,         1930         530         2,546,629         548         2,636,414	Month         ships         tonnage         ships         tonnage           August, 1931         122         374,434         118         377,085           July         125         393,553         120         379,526           June         127         376,049         114         338,066           May         110         353,301         118         368,874           April         131         409,907         139         420,594           March         123         385,514         107         330,157           February         99         327,516         106         340,771           January         121         386,924         127         412,306           December         120         390,126         127         429,048	Month         No. ships         Net tonnage ships         No. tonnage           August, 1931         179         484,245         172         474,230           July         184         539,810         172         509,475           June         193         561,399         190         562,090           May         185         532,046         192         551,459           April         195         576,251         181         536,678           March         185         545,474         188         537,148           February         159         499,643         172         537,813           January         207         610,472         190         548,267           December         203         602,527         197         578,723
Philadelphia	November, 1930 116 384,877 117 376,725  Norfolk and Newport News	November, 1930 187 555,053 194 541,671 Charleston
(Including Chester, Wilmington and the whole Philadelphia port district)	(Exclusive of Domestic)	(Exclusive of Domestic)
(Exclusive of Domestic) —Entrances——Clearances—	Month Ships tonnage ships tonnage	Month  —Entrances——Clearances— No. Net. No. Net ships tonnage ships tonnage
Month         ships         tonnage         ships         tonnage           August, 1931         81         208,854         59         147,948           July         76         201,677         59         155,114           June         75         218.611         50         127,906           May         82         235,108         62         170.497           April         68         189,113         51         136,433           March         65         198,848         46         116,.86           February         69         200,212         53         163,134           10         227,146         49         158,570           December         80         206,778         55         144,471	August, 1931       21       59,408       54       127,864         July       31       77,082       63       149,665         June       39       108,710       59       167,488         May       22       63,739       49       140,356         April       14       31,959       40       116,565         March       19       47,982       52       13.616         February       15       43,123       46       116,116         January       21       57,883       61       170,594         December       44       92,341       63       174,384         November, 1930       22       65,716       56       141,242	August, 1931
November, 1930 87 226,006 46 122,107  Boston	Jacksonville (France of Demostic)	Galveston
(Exclusive of Domestic)	(Exclusive of Domestic)  —Entrances——Clearances— No. Net No. Net	(Exclusive of Domestic)  —Entrances——Clearances— No. Net No. Net
Month   ships   tonnage   ships   tonnage   August, 1931   131   388,799   98   305,488   July   131   362,111   94   290,433   June   130   347,787   97   264,467   May   108   311,171   91   293,146   April   107   292,403   89   233,456   March   97   279,797   66   243,377   February   76   259,402   57   190,598   January   76   245,382   49   195,091   December, 1930   91   287,347   50   174,971	Month         ships         tonnage         ships         tonnage           August, 1931         21         61,439         24         70,922           July         9         18,703         5         9,297           June         11         24.902         13         24.517           May         8         21,046         7         11,045           April         15         31,901         5         10,614           March         10         1.299         6         789           February         7         18,934         9         20,915           January         14         28,243         10         15,617           December         17         33,862         16         29,847           November, 1930         14         30,105         10         13,048	Month         ships         tonnage         ships         tonnage           August, 1931         39         85,793         79         234,583           July         46         107,0.8         75         226,381           June         35         66.342         73         205,074           May         27         53,091         69         191.632           April         26         62,924         68         210.315           March         25         39,536         69         205,341           February         23         40,825         71         209.057           January         25         45,442         84         260.555           December         40         97,907         91         282,726           November, 1930         27         58,099         101         303,748
Portland, Me.	Key West	Los Angeles
(Exclusive of Domestic) —Entrances——Clearances—	(Exclusive of Domestic) —Entrances——Clearances—	(Exclusive of Domestic) —Entrances——Clearances—
Month         ships         tonnage         ships         tonnage           August, 1931         29         50,249         23         39,273           July         24         52,979         22         52,945           June         17         28,216         17         26,397           May         12         20,821         11         22,573           April         11         30,000         10         25,765           March         6         20,081         7         20,122           February         18         48,722         15         45,664           January         14         40,247         15         46,602           December         23         55,605         23         60,126           November, 1930         21         46,182         20         40,916	Month         ships         tonnage         ships         tonnage           August, 1931         37         56,505         37         56,505           July         39         59,268         41         62,526           June         63         81,660         63         86,349           May         83         91,683         80         90,758           April         60         55,493         51         54,656           March         60         69,731         56         72,956           February         61         70,169         56         69,443           January         61         82,218         57         30,394           December         56         71,327         56         75,588           November, 1930         49         63,307         50         64,389	Month         No.         Net         No.         Net           August, 1931
Providence	Mobile	San Francisco (Exclusive of Domestic)
(Exclusive of Domestic)  —Entrances——Clearances— No. Net No. Net	(Exclusive of Domestic)  —Entrances——Clearances—  No Net No. Net	—Entrances——Clearances— No. Net No. Net
Month         ships         tonnage         ships         tonnage           August, 1931         10         41,671         3         12,240           July         6         25,062         7         30 748           June         6         21,104         3         12,211           May         9         37,120         2         8,674           April         8         32,848         6         25,101           March         5         18,288         4         17,10           February         9         43,707         8         30,036           January         8         28,019         5         15,335           December         9         36,380         6         25,318           November, 1930         13         46,927         5         18,597	Month         ships         tonnage         ships         tonnage           August, 1931         113         217,541         97         194,678           July         101         229,960         92         212,634           June         88         197,952         93         217,151           May         103         194,198         93         194,198           April         107         251,402         108         242,685           March         109         232,778         102         229,966           February         93         222,163         86         206,376           January         112         282,874         111         249,375           December         91         208,802         84         194,477           November, 1930         106         241,663         99         220,755	Month         ships         tonnage         ships         tonnage           August, 1931         140         636,189         160         665,108           July         173         743,588         155         679,657           June         159         663,047         155         634 838           May         161         658,525         163         676,789           April         158         733,902         170         702,433           March         156         642,924         139         544,316           February         142         577,019         143         581,775           January         165         685,851         172         721,042           December         154         646,767         174         689,358           November, 1930         144         570,715         161         656,424
Portland, Oreg.  (Exclusive of Domestic)	Seattle (Exclusive of Domestic)	(Exclusive of Domestic) —Entrances——Clearances—
Month ships tonnage ships tonnage August, 1931 29 114,582 31 119,968 July 28 107,694 48 174.226 June 30 116.953 35 139.799 May 24 94,695 39 142,847 April 26 104,099 36 141,036 March 41 158 869 46 173.220 February 24 95.726 43 175.697 January 29 119.686 47 192,455 December 27 107,300 52 197.628 November, 1930 30 122,020 53 208,266	Month ships tonnage ships tonnage August, 1931	Month         ships         tonnage         ships         tonnage           August, 1931         31         127,112         44         163,103           July         35         148,988         45         178,091           June         23         115,140         38         139,102           May         23         101,100         39         152,690           April         32         125,007         47         177,058           March         24         106,838         32         131,470           February         30         130,544         38         152,347           January         26         111,047         37         140,×60           December         35         143,585         47         185,757           November, 1930         28         105,541         50         178,538           sels in foreign trade enter and clear from and othia, for instance, additional vessels in the for-
eign trade in this category were 77 of 259,912 no	before final departure. At the port of Innade, et tons entered and 65 of 230,389 net tons cleared	for the month of August.



# How Reducing Accidents to a Minimum Will Increase Your Profits

By H. E. Stocker

been aroused in industrial accidents—their causations, frequency and severity, also the new increase in insurance compensation rates, effective Sept. 1, 1931.

This increase is to be distributed over three industrial groups in the following ratios: Manufacturing 17 per cent; contracting, 9 per cent; all others 13 per cent.

In a statement recently issued by George S. Van Schaick, New York State superintendent of insurance, he said:

"The necessity for keeping workmen's compensation rates from being advanced to an unreasonable
level is particularly important as
workmen's compensation insurance
is compulsory. At the present time
the industries of this state are laboring under heavy burdens as a result
of economic conditions that have
existed for almost two years.

"While companies furnishing workmen's compensation insurance under present conditions are confronted with a drain on their resources which may properly call for an increase in rates as requested, they should do everything in their power to reduce the drain on their premium income resulting from commissions and administration expenses.

"At the national convention of insurance commissioners at Chicago in June it was the sense of the convention, as indicated by a resolution

there adopted, that the insurance companies exert every effort to bring about further economies in the operation of their business.

#### Increase in Insurance Rates Approved

"It is held that a reasonable increase in workmen's compensation insurance rates, to be effective on new and renewal business on and after Sept. 1, 1931, shall be 15 per cent. It is also held that the emergency factor of this increase—namely 4.7 per cent—is solely an emergency increase and will be subject to revision as soon as experience throws more light on the problem.

"Through the proper exercise of rigid economy in the conduct of the workmen's compensation insurance business, together with a strict review of classification, and payroll records of their assureds, to the end that all assureds are properly classified and required to pay the proper rate of premium on their full payrolls, sufficient additional revenues and savings should result to enable the insurance companies to overcome this emergency factor."

As mutually wise and equitable as this new rate would seem to be, especially taking into consideration its emergency needs, there is one factor which is apparently overlooked, one on which none of the suggested economies of insurance management will have any permanent corrective result.

I refer to the securing and keeping under control the human wastage costs represented by personal injuries caused by industrial accidents, which are the basis on which ratios are generally based, notwithstanding the constructive work done by the National Safety council by many of our industries individually, especially the more efficiently managed industries. Management as a whole has not made the same efforts to reduce or perhaps eliminate this type of financial loss as they have those of production and distribution of their products and, therefore, there is a great opportunity for economy by reduction of wastage.

While an emergency increase in insurance rates may be necessary, it is vitally necessary to bring greater attention to the need for eliminating the basic cause of high rates and broaden the application of safety engineering in American industry. For example, the work done by the United States Protection & Indemnity Agency, Inc. has demonstrated clearly the great gains that can be made in reducing the number and severity of accidents in stevedoring work. While the human factor should be given every consideration, the money losses to a shipping company resulting from accidents must be made clear to secure the fullest cooperation.

At this time when profits are reduced, or non-existent, it is vital

that everything possible consistent with good management be done to reduce costs. Nothing is more characteristic of the best managed companies in shipping or any other industry than a well developed safety program because the best management "keeps its eye on the ball". . . net profits, and does everything that aids reaching this objective. A dollar saved in a safety program is worth more than a dollar saved in fuel, repairs or reduced wages because it reduces costs and improves morale at the same time. Also it eliminates the indirect cost of accidents, which is not a characteristic of other types of waste.

An analysis of the results obtained by a number of shipping and stevedoring companies who have availed themselves of the United States Protection & Indemnity agency's safety program show that safety engineering results in large financial savings.

One company saved \$100,000 by a reduction of 54 per cent in the severity rate resulting from the work of safety engineers during a period of one year.

Another company handled 100 per cent more cargo per accident in the year they adopted their safety work than they did the year previously—and over 100 per cent in the costs of their accidents.

#### Savings in Proportion to Effort

The possible savings made are in direct proportion to the efforts expended, and will reach their highest point when complete co-operation is forthcoming.

On the Pacific coast much excellent work has been done by safety engineers. A large steamship line estimates its savings due to its safety program in effect for several years as \$30,000. a year, and it was found that efficiency of the work increased rather than decreased.

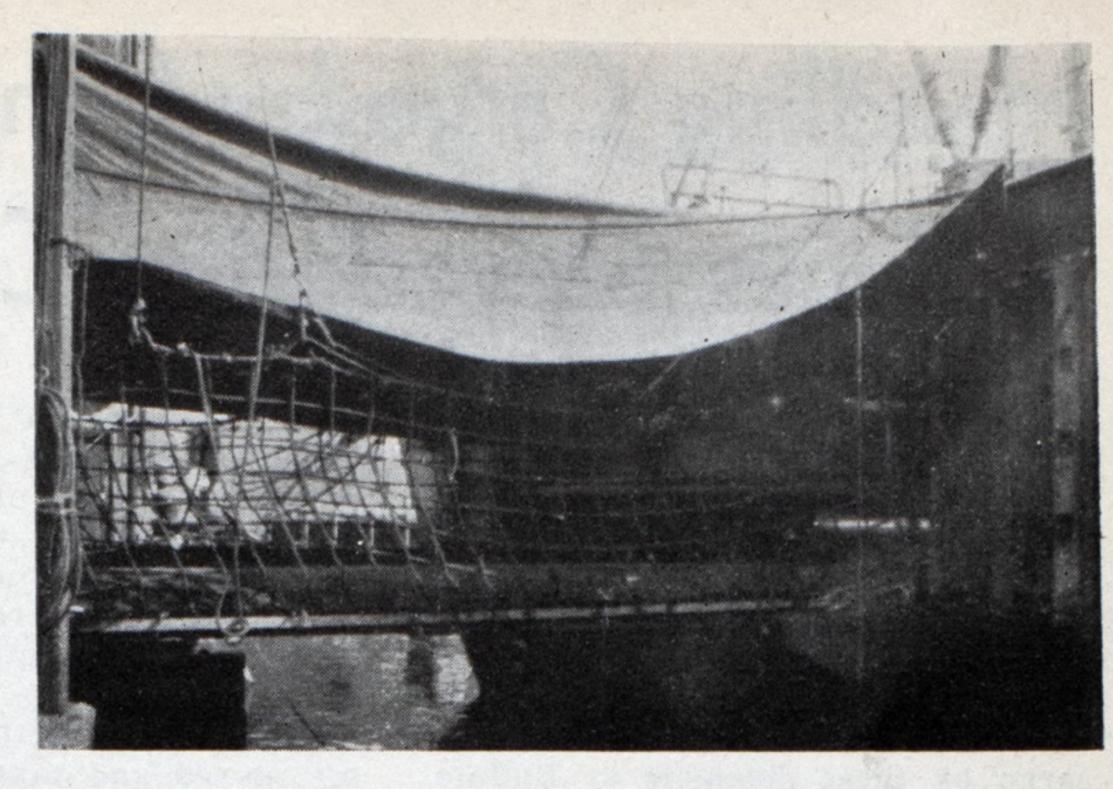
It is characteristic of the intelligent safety program that the volume of work done is improved rather than decreased by improving safety conditions. This result is so characteristic of all conditions that the American Engineering council has stated that "maximum production is dependent upon the reduction of accidents to an irreducible minimum." This is true because the steps taken to prevent accidents prevent the use of wasteful methods. Stopping packages from falling from trucks not only prevents the accidents that happened when a case falls on a man's foot but also saves damage to the cases that fall off the trucks. The best designed hatch cover prevents many accidents that result from using the usual wooden hatch covers, but in addition reduce stevedoring costs every time a hatch is uncovered or covered.

The chief reason for the lack of a greater extension of safety work in

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Port skid with side nets and cover as a protection to men working cargo.

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industry is the lack of the understanding of the dollars and cents value of safety work and a failure to direct managerial attention, to the greatest opportunities for profit and in profit—to the possible profits in each division of the work of the company. It would sometimes seem as though some executives are more interested in the conservation of their companies' physical and mechanical properties, both ashore or afloat, than in the human element, while the damage done to the latter in many instances is financially a more serious drain on their treasuries.

The group which owns the United & Indemnity Protection States Agency, Inc., when taking over the agency from the shipping board in June 1929, immediately recognized the need for a vigorous safety campaign. This group includes the following companies: American Insurance Co., American Eagle Fire Insurance Co., Continental Insurance Co., Fidelity- Phenix Fire Insurance Co., Firemen's Insurance Co., Glens Falls Insurance Co., Hanover Fire Insurance Co., who are represented in marine affairs by the Marine Office of America. These associated companies spend large sums in safety work, knowing that a return is possible only by reduction of accidents. Since reduced accidents bring reduced insurance rates, it is logical for steamship companies and stevedores to do their part in safety programs and to co-operate to the maximum with insurance companies.

Thorough management goes after every dollar with equal effectiveness either through members of the organization or with the aid of outside agencies that have certain specialized training and experience.

When an executive's training and experience are such that he cannot properly attend to specialized work such as ship or engine design, he employs a naval architect or a marine engineer. When he is not trained in modern safety methods he should avail himself of the service of a well trained safety program. It is the logical and profitable step to be taken particularly in times of depression when a dollar saved is worth much more than in times of better business conditions.

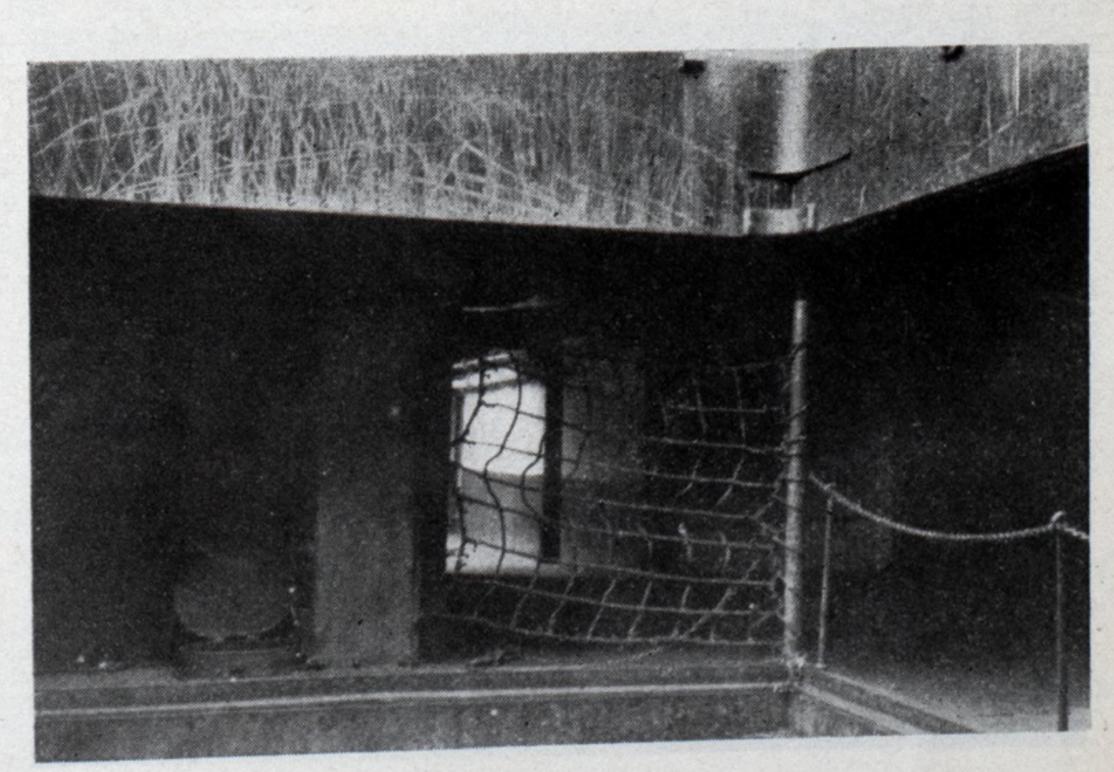
#### Test Shipments of Wheat

The long awaited movement of wheat to Europe via Canada's new seaport at Churchill, Manitoba, got under way Aug. 25, when a train of 20 cars loaded by the Canadian Cooperative Wheat Producers, Ltd., from the government elevator at Saskatoon, left over the lines of the Canadian National railway. The loading of the first ship was scheduled for between Sept. 15 and 20 and the second between Sept. 20 and 25.

CHARLES CONTRACTOR CON

Net at corner of 'tween deck hatch to prevent packages falling into hold from Truck as it makes turn.

The manufacture of the state of



### Handling Cargo by Conveyors Reduces Stevedoring Costs

STEAMERS of the Great Lakes
Transit Co. are now making excellent records loading flour and
other bagged cargo at South Chicago,
with screw type conveyors. One
steamer loaded 4200 tons in 12½
hours through four side ports.

It will be recalled that the use of screw type conveyors for discharging cargo by these steamers at Buffalo was described in the November, 1930 issue of Marine Review.

Ships that discharge at Buffalo, load part of their cargo at the South Chicago terminal. With the installation of screw type conveyors at South Chicago, a better co-ordinated cargo handling system has been worked out with large economies in cargo handling costs and quicker dispatch of

steamers.

The South Chicago terminal is a shed 594 feet long and 78 feet wide, with an eight-foot platform on the outside of the shed along the depressed tracks running along the inshore side of the shed. On the offshore side of the shed there is a depressed ship side track in the 25 foot space between shed and side of the wharf.

Cargo is brought to the terminal in box cars which are switched into the two tracks on the offshore side of the shed. Eight cars are spotted on each track with their doors opposite each other, making a total of 16 cars which can be worked at one time.

When work is started, the power head of the conveyor, consisting of a 5 horsepower motor, a set of gears and a connecting length of conveyor tube mounted on a steel frame, is placed on the toeboards of each of the eight cars alongside the shed. The power head frames are fitted with casters so that this operation is done quickly and easily. The power head

conveyor tube is connected with eight-foot sections of conveyor, the first few lengths of which are also fitted with casters, to facilitate running the conveyor into and out of the cars as the bags are unloaded. The other sections running across the terminal and into the ship are without casters. These sections are easily set up, moved and taken down because of the light weight of the construction which permits quick assembly or taking apart.

There are three power heads in each line of conveyors. One at the car, one on the terminal near the car and one at the terminal end of the gangplank. Bags are transferred from one unit to another by elevation of the end conveyor tubes, by means of a straddle end stand, so that the bag is carried above the next power head. The bags slide down a short chute on to the next unit of conveyor and continue their forward movement.

There are two lines of conveyors through each of the four side ports, one running straight across the terminal into the port, the other running from the adjoining car at an angle to the same port.

The conveyor line is run in a curve within the ship as needed to carry bags to hatches or to various parts of the 'tweendeck. Where a right angle turn is necessary at No. 1 port to carry bags to a compartment forward in the 'tweendeck, a branch line conveyor is installed, power head and whatever 8-foot and 4-foot sections are necessary.

Trap hatches cut into the 'tween-deck at convenient places facilitate handling cargo into the lower holds.

When the cargo lines are ready to start operation, (about fifteen minutes is required to set up all the

conveyors), bags are picked up at the car door and are placed on a steel chute extending over the power head. The bags slide down on to the conveyor tubes in proper position for travel to proceed from section to section and finally arrive at the end of the conveyor line in the ship. Here they are either dropped into the hold by chutes and stowed, or are piled in the 'tweendeck. After the bags are cleared out of the car door, the power head is pushed into the car. The guide rails on the end conveyor section of the car unit. keep the straddle in proper position so that no adjustment is necessary as the conveyor is moved into the car as required.

The power head is pushed into the car on the second track as the doorway is cleared and finally it is placed at the far side of the doorway. The two cars then feed bags to the conveyor. As the ends of the cars are approached, bags are brought to the conveyor with a four-wheel truck which carries 17 bags at a time.

When a set up of cars are unloaded, a switch is made and a new group of eight cars are started unloading. The conveyor section in the cars can be quickly and easily shifted when a switch is to be made because of the casters on power head conveyor stands, as well as on the guide rails, previously described, which keep the straddle stands in line.

This arrangement of conveyors for loading steamers and unloading cars has proved so satisfactory that it is expected that the entire cost of the installation will be paid for in less than one season. This result is made possible by the economies in man power and speed of handling.

The W. J. Conners, which is the flagship of the fleet of 22 vessels of the Great Lakes Transit Co., was loaded late in July with the following tonnage. Of the bagged goods 63 cars were loaded from car through warehouse into hatch of ship in five hours. The reduction in handling costs accomplished by the conveyors over former costs of hand trucking is a part of the confidential operating freight records of the company, but the percentage of the saving is sufficiently large to more than pay for the equipment in one season's operation.

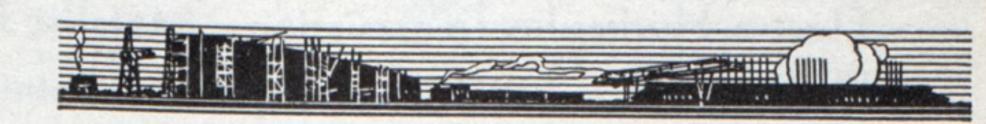
As an illustration of the speed and smoothness of the operation one conveyor line was "clocked" during the loading of the W. J. Conners and found to be carrying 148 tons per hour. Double this tonnage has been obtained by running two feeder lines into a trunk line but it was found that hold men could not handle at this speed at the hatches for stowing. The present method is to run two truck lines and distribute to each side of the hatch simultaneously.



Loading bag cargo byconveyorthrough five ports of the Steamer W. J. Conners of the Great Lakes Transit Co. at Calumet Harbor, South Chicago.

### Useful Hints on Cargo Handling





ATSON NAVIGATION CO. has found that side port handling of cargo does not reduce cost per ton as compared with overall loading except in so far as overtime is reduced and ships expedited because with greater number of cargo openings more cargo can be handled in eight hours. Approximately 30 per cent of the cargo handled at the company's San Francisco pier is handled through side ports. Loading is facilitated by providing trap hatches in the 'tweendeck through which cargo may be dropped or passed down to the lower hold by chutes. For example, electric lift trucks bring skids loaded with bags of rice from the dock through the side port and across the 'tweendeck to a trap hatch. The skid is dropped at this point. The bags are picked up by the longshoremen and placed on chutes running athwartship to bags piled about half way up in the hold. This chute discharges to a level chute that leads across the hold to place of stowage.

#### Wage Incentive Plans

WAGE incentive plans have been successfully applied in railroad less carload freight stations and in complex materials handling operations in industrial plants. In these times when cutting costs is vital, a wage incentive plan is worth the consideration of shipping executives.

The point is, that if wage incentives can be applied to other complex materials handling operations, then it is worth trying in a cargo handling operation. This is particularly true in those operations where large tonnages of one commodity are handled, such as coffee, sugar, etc.

All new terminals constructed by the Los Angeles Harbor board will be equipped with cargo masts.

The ability to think in terms of principles is necessary to achieve the best results in cargo handling. Methods change but principles are unchanging, therefore he who understands principles works faster and with greater certainty. Principles save a great deal of thinking, leaving time free for working out solutions of new problems.

A special type hook is used by lengshoremen on the Pacific coast for handling bags of raw sugar. This hook has five points, over a total width of four inches. It has been

THIS page is being devoted to short items on all matters having to do with the more efficient turnaround of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.



Unique Arrangement of Winches and Controls on Coastwise Freighter, Pacific Coast Steamship Line

found that this hook causes less damage to the bags.

A large sugar handling operation handled 600,000 tons of sugar in 109,500 man hours with only four loss time accidents.

The Matson Navigation Co. maintains a cafeteria on their San Francisco dock for crews when ships are in port and for the longshoremen.

At a San Francisco pier shipside railroad tracks are carried over cut gangways for use when working side ports by a special device which lowers a section of the floor to the proper level for trucking through the side port.

A steamship line handling unboxed automobiles keeps them on the bulkhead wharf rather than on the pier to avoid damage by street trucks backing into them.

The Moore and McCormick line uses wooden hatch covers made up into several sections for a hatch instead of a large number of individual

covers for each hatch. This is advantageous for preventing accidents from falling covers.

Painting covers of pipe lines on deck with aluminum paint is a good safety measure. There is less danger of falling over the covers in the night time.

A new type of trailer has been developed that dumps a load of 20 sacks of sugar within a minute, saving considerable time and money as compared with handling sack by sack.

New achievements are now to a less extent the result of blind groping than of conscious progress.

The Belgian line, New York, handles practically all freight on the dock with gasoline cranes. A few trailers are used to handle cargo going to the farm. Thirteen cranes are now in use.

A new type of rope sling has been developed on the Pacific coast on which replacement costs are very much less than the usual type rope

Shipping firebrick on skids has reduced breakage and chipping to the minimum.

#### Standardizing Equipment

A SHIP was recently loading bags of aluminum sulphate direct from box cars to hold. Number one hatch was being worked with a rope sling while a platform sling was used at number two. One or the other of these slings was the one best sling to be used and that sling should have been used at both hatches. There is profit in the standardization of methods and equipment.

The Fay Transportation Co., San Francisco, is completing a new self propelled barge for bay and river work. This barge will have large elevators serving both sides of the barge for handling gasoline lift trucks and skids which are used by the Fay Transportation Co. for handling 95 per cent of its cargo.

Truckmen delivering freight to the Fay Transportation pier deliver packages direct to skids rather than to the floor of the dock, thus saving a handling for the company.

### Equipment Used Afloat and Ashore

Electro Hydraulic Transmission—Metallic Packing—Pump Unit—Pneuphonic Horn—Hatch Cover—Lift Truck—Expansion Joint—Lining Steel Tubes—Generator—Welder

A SMALL, compact 5 horsepower electro-hydraulic transmission which will develop full rated torque at any speed, whether one or 1000 revolutions per minute has been developed by the American Engineering Co., Philadelphia. Since the torque is constant the horsepower output varies with the speed of the hydraulic motor. At maximum speed

system passes through finned tubing surrounding the fan.

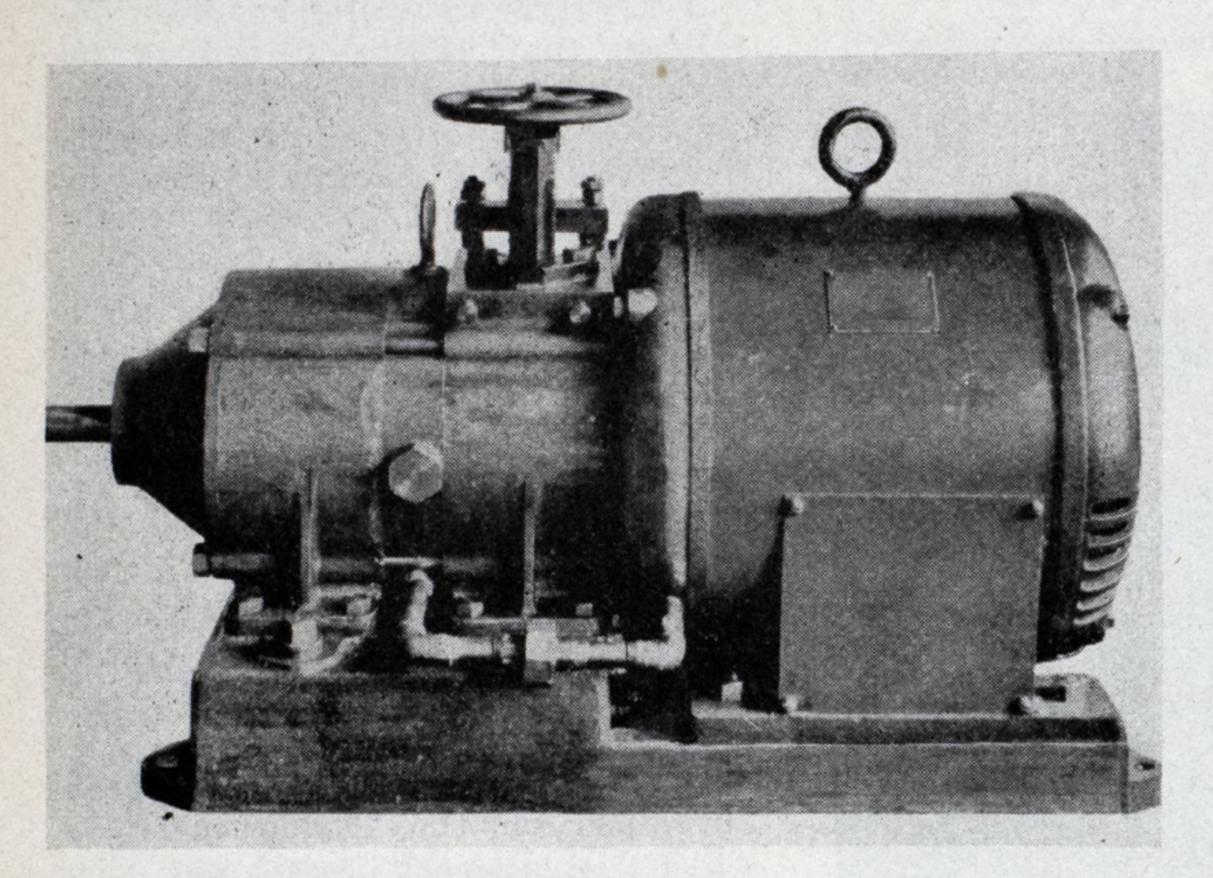
#### Marine Type of Metallic Packing Ring

THE fundamental principle involved in the manufacture of any metallic packing lies in the construction of

screws in the hub that extends into the stuffing box. There are two tapered dowels in the flange for perfect alignment of the grooves at the split. The flanges are made heavy to withstand the rough usage they sometimes get on board ship.

The rings are made of vanadium cast iron. The cases are made of cast iron and all glands are drilled and tapped to drain off excessive condensation.

France Packing Co., Tacony, Philadelphia, has recently taken over the packing business of the Martell Packings Co., formerly of Elyria, O., and renewals or replacements can be furnished from the records.



New Hale-Shaw Type of Electro-Hydraulic Transmission in Five Horsepower Size

the transmission will develop 5 horsepower continuously.

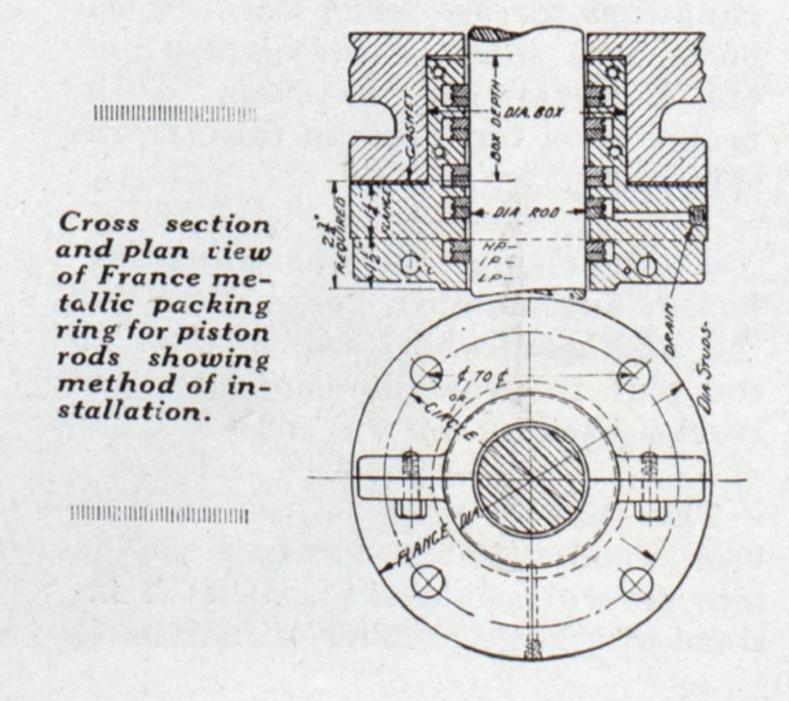
In the picture the hydraulic motor is at the left, hydraulic pump in the middle and electric motor at the right, all mounted on a single bed plate reservoir which contains the oil used in the system. The entire transmission, including motor, is only 30 inches long, 14 inches wide and 16 inches high.

The hydraulic pump and motor are of the Hale-Shaw design and are similar in construction except that the motor has a fixed stroke while the stroke of the pump may be varied from minimum to maximum. Pump and motor are multi-cylindered and handle the fluid in a smooth, continuous stream.

The electric motor drives the pump shaft at a constant speed. Oil is delivered by the pump to the hydraulic motor at a rate corresponding to the stroke of the pump, regulated by the hand wheel shown, or any other desirable hand or automatic control. This is the only point of regulation as there are no controls on the motors. Through the handwheel the speed of the hydraulic motor can be varied all the way from zero to maximum in either a forward or reverse direction. The pump end of the electric motor shaft is fitted with a fan and oil in the

the steam ring. The France ring is cut in three sections, the faces of contact being the sides of an equilateral triangle, the center of which coincides with the center of the rod to which the ring is fitted. As the ring is expanded or contracted, the sections must move in or out on a line radial to the rod. As long as the rod is round, the sections will move in or out radially equal distances from the center of the rod.

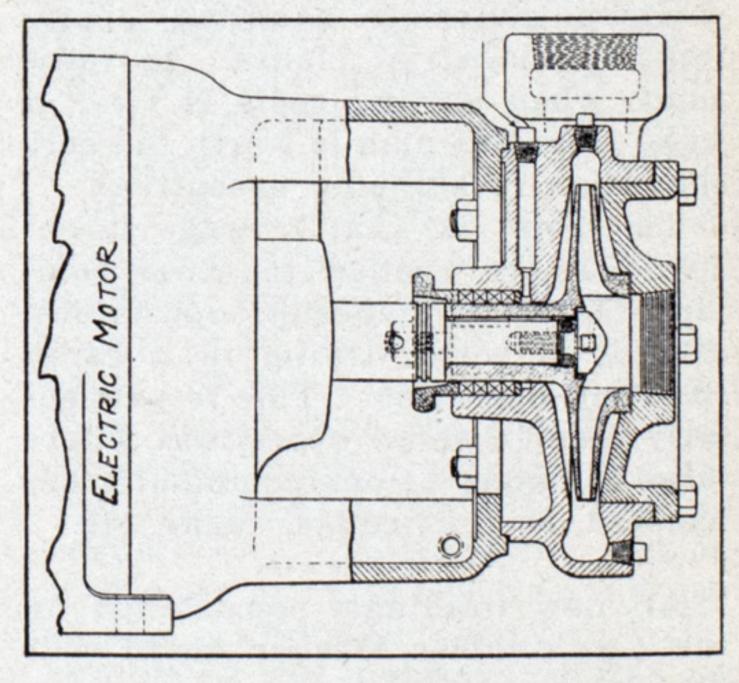
These rings are placed in grooves machined in containers or cases. The marine type is shown in the accompanying illustration. It is held together with substantial cap screws in the flange that extends outside the stuffing box, and with filister head



#### Monobloc Pumping Unit Meets Many Needs

A NEW Monobloc pumping unit has recently been placed on the market by the Worthington Pump & Machinery Corp., Harrison, N. J.

This pump, simple and rugged, is bolted to the extended motor frame and the impeller is mounted on the end of the continuous motor shaft. The bronze impeller incorporates the



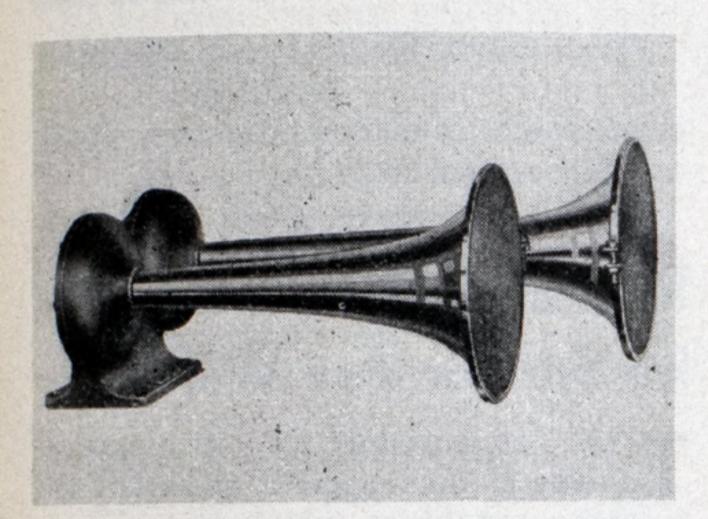
Cross Section of Worthington Monobloc Type D Centrifugal Pump

shaft sleeve as an integral part. The special cadmium-plated steel locking device for the impeller, the forged bronze packing gland and the arrangement of shaft water-throwers, are outstanding features of the pump.

The applications of this new unit are many and it should be of exceptional value as a built-in part of assembled equipments such as air conditioning apparatus, dish, bottle, can and metal-parts washing machinery, filters and filter systems, core sucking units and many others. It also will be found of value for general use.

### Unusual Tone Produced By Pneuphonic Horn Signals

THE compressed air alarm signal, known as a pneuphonic horn, shown in the accompanying illustration is produced by the Westinghouse Air Brake Co., Wilmerding, Pa. The device is simple in design, consisting of a counterbalanced metal diaphragm enclosed in a sturdy housing, and a bronze bell. Air entering the housing and escaping through a restricted outlet causes the diaphragm to vibrate rapidly. These vibrations release air waves that are greatly amplified by resonance in the bell, thus producing a sound of tremendous carrying power. While clearly audible at a great distance the signal produces no ear-splitting annoyanace nearby. The horn is easily installed and requires



Type AA-1 Pneuphonic Horn Signal

no adjustments. The only working part is the vibrator unit, a special bronze diaphragm, which is enclosed in a substantial weatherproof housing.

Two sizes are available, a small horn suitable for motor boats or yachts, and one of deeper tone for larger boats, tugs, ferries, etc. Single bell pneuphonics may be had, the double horn type, or the larger horns may be arranged in combinations of four or more bells. Air pressure ranging from 40 to 140 pounds is required, depending upon the size and number of horns and may be controlled directly by a signal valve and operating cord, or from a distance electrically by a magnet valve and switch.

### New Type of Hatch Cover Is Introduced

To MEET the requirements of owners who prefer to keep the decks clear between the coamings and the bulwarks, a new type of steel hatch cover has been introduced by MacGregor & King, Ltd. This new type is a fore and aft rolling and pivoting steel hatch cover. In the application of this piece of equipment to a double gang hatch, the side coamings are stopped under two central sections. Each of these central sections rolls over the adjoining outer section and the superimposed pairs are then rolled out until the

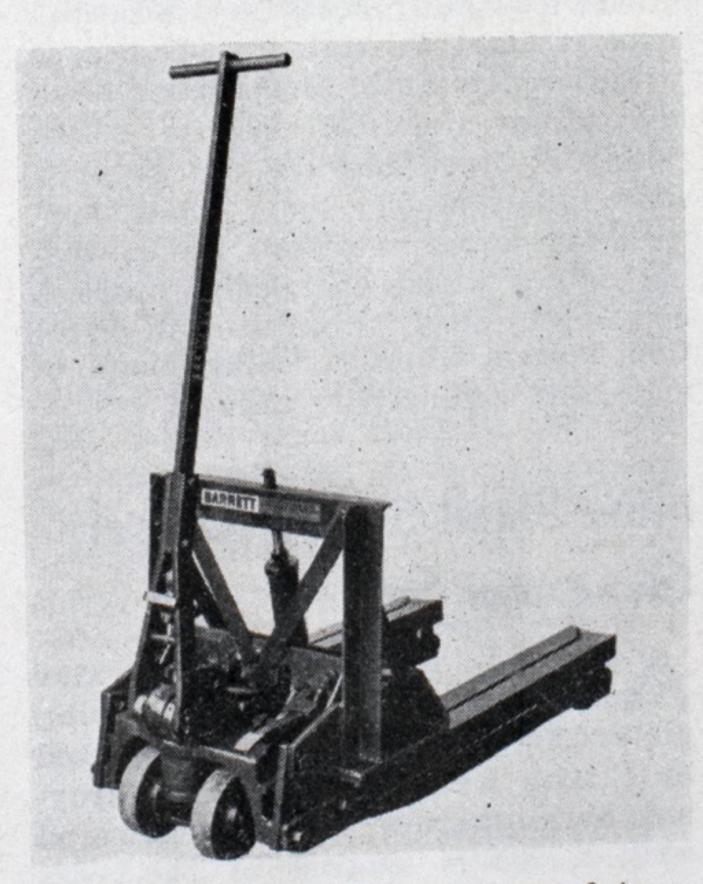
pivots on the lower sections engage in the half trunions fitted at the ends of the hatchway. When in this position they are near balance and can be swung into a vertical position by hand tackle or winch. When stowed, the covers occupy about two feet in longitudinal direction and stand vertically one-fourth of the length of the hatchway above the deck.

In the use of this cover for single gang hatches, it is in two sections with stepped coamings. One-half of the cover is rolled on the other half and the two sections rolled out until the pivots engage in the half trunnions. The cover is then pulled into vertical stowing position by an ordinary ship's winch and tackle, the height being half the length of the hatch from the deck and the pull on the winch about one ton.

Advantages claimed for this new steel hatch cover are: Low vertical height in open position and with no interference with the handling of cargo; no special high or heavy stayed derrick posts or heavy winches are required; more than two-thirds of the hatch can be hand-opened in two minutes at sea or in port; the winchman has a clear view down the hold; and the hatch is especially suitable for electric winches.

### Lift Truck Designed To Handle Tin Plate

THE accompanying illustration shows a new lift truck designed for handling tin plate recently developed by Barrett-Cravens Co., 101 West Eighty-seventh street, Chicago. This truck is a fork type, built 3½ inches high to go under stacks of tin plate which are shipped on 2 x 4's. With the life truck a pile of tin plate is lifted and trucked from the freight car to the desired storage space in the plant, eliminating piling in the car and unpiling for storage, which was formerly necessary.



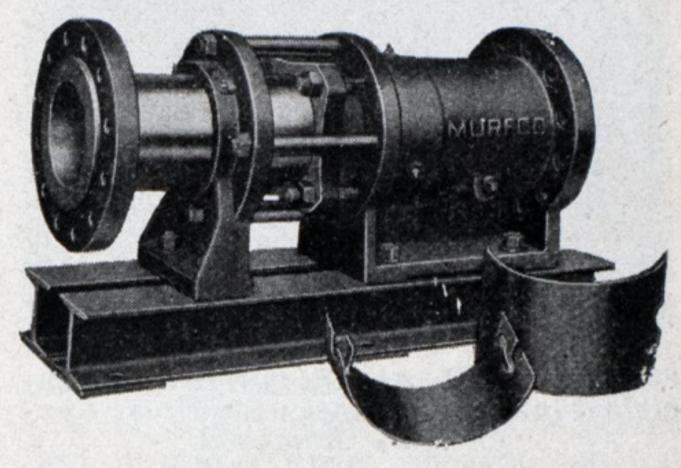
Lift Truck for Handling Tinplate

### New Heavy Duty Expansion Joint Passes Tests

A N EXPANSION joint which in actual practice has passed the most severe tests is shown in the accompanying illustration.

The salient point of this joint lies in the fact that it has a permanently fixed extension guide which is rigidly attached to the body of the joint proper. This precludes any chance of misalignment and hence preserves the packing in its concentric position with the sleeve proper. This not only eliminates leakage but makes the repacking simple.

Another exclusive feature is found in the lubricating system. Alemite fittings lead a charge of zinc oxide lubricating compound under pressure through a metal distributing ring, forming the lubricant into a



Murfco Heavy Duty Expansion Joint

thin film between the packing and sliding sleeve. Hence the packing is impregnated and preserved in a soft, pliable and resilient condition.

Other features have been provided to eliminate expansion line trouble under the most rigid conditions found in present day high pressure and high temperature pipe line service. The Murfco expansion joint is made by the Murphy Machine Co., Philadelphia.

#### New Cutting Torch Has Wide Adaptability

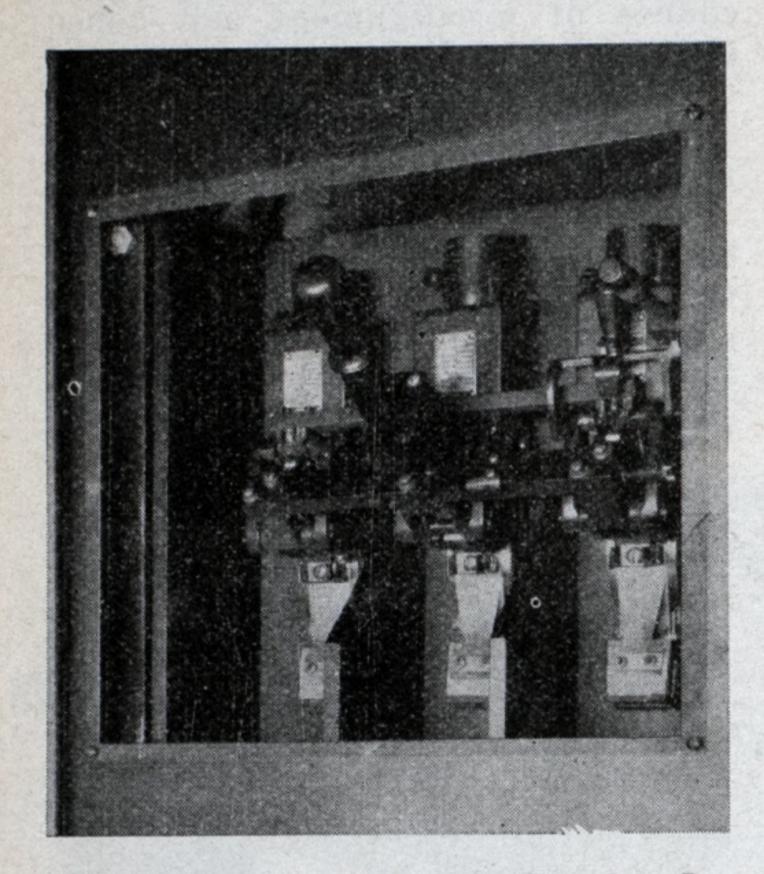
A Type CC and weighing only 46 ounces with tip attached has just been put out by the Bastian-Blessing Co., 240 East Ontario street, Chicago. Previous to being put on the market, this torch had 14 months of actual field tests under all conditions and with various fuel gases and developed unusual speed of cutting and low consumption of gas.

The torch has an overall length of 20 ¼ inches from the base of handle to end of tip nut and is easy to handle in tight corners. Wide adaptability as to fuel gases and range is a characteristic of the new model, as a change in the tip makes the torch ready for use with acetylene, hydrogen, carbohydrogen, oxyacetylene and petroleum gases.

#### Install Special Seagoing Air Circuit Breakers

A NEW idea for the prevention of corrosion is a recent order of CL air circuit breakers supplied the Craig Shipbuilding Co. by Westinghouse Electric & Mfg. Co.

These special breakers had all brushes, studs and overload coils silver plated and all iron parts cadmium plated to guard against the possibility

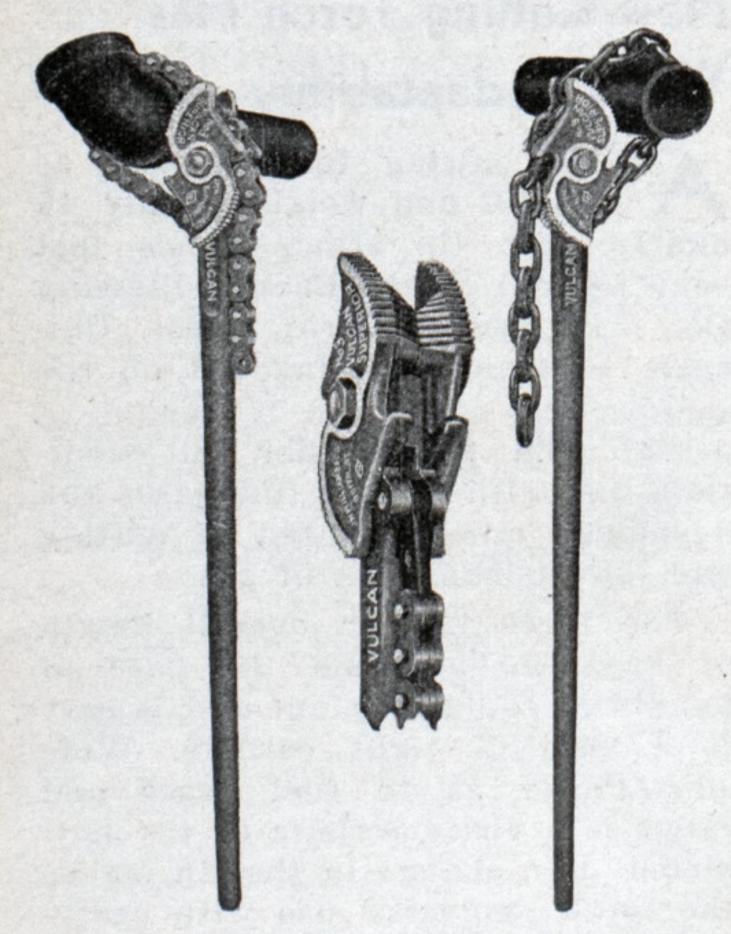


800-ampere CL Air Circuit Breaker Installed in a Steel Panel with Front Cover Plate Removed

of corrosion. They are now installed on the latest type dead-front steel switchboard for use in a palatial yacht on the Pacific coast and consist of 68 pole units ranging in size from 12½ to 800 amperes.

### Chain Tongs Unit Provides Two Tools in One

A chain tongs, suitable for use in the marine field for service on both pipes and fittings on board ship,



Three Views of New Chain Tongs for Both Pipe and Fittings

in shipbuilding and repair yards, has been introduced by J. H. Williams & Co., Buffalo. Inasmuch as it is considered common practice for steamfitters to use two tools, one for pipe and one for fittings, this unit is said to comprise two tools in one.

The "V" recess in the jaws, which can be noted in the accompanying illustration, insures a quick and positive grip on fittings. According to the manufacturers, there is no necessity for stopping work to alter the tool, and there are no parts to lose. The makers claim that this is the only chain tongs on the market with reversible pipe and fitting jaws. A double length of life is made possible by a feature of the tool which permits turning the jaws end for end after wear is noticed on the teeth first used.

The chains, either flat or cable type, which constitute an essential feature of this tongs lock easily and positively and are thoroughly tested. According to the manufacturers, all parts are interchangeable, and the tool is fully guaranteed.

#### Announce New Method of Lining Steel Tubes

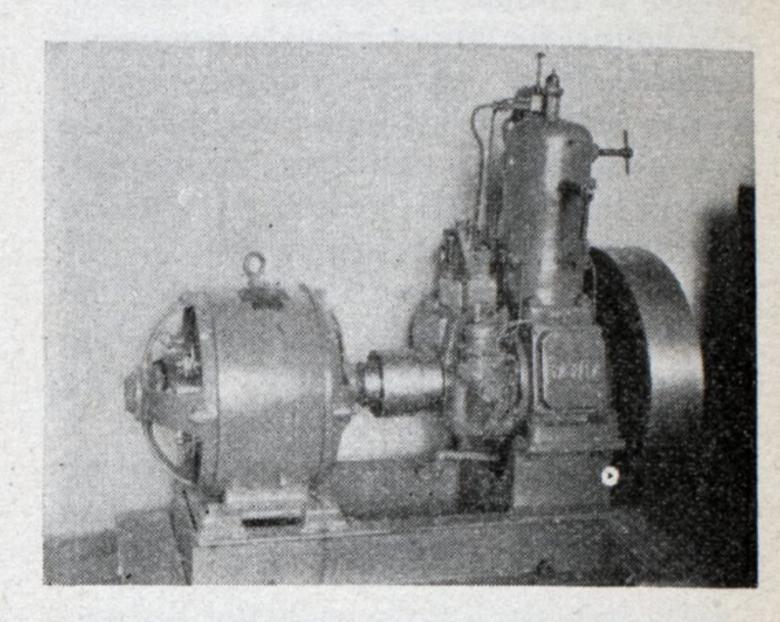
A NEW method of lining steel tubing with a variety of metals or alloys has been announced by the Detroit Seamless Steel Tubes Co., Detroit, which has secured exclusive patent rights to the process. In combining the inner lining metal with the outer steel shell the two are bonded by fusion so inseparably that there is not only no evidence of separation, but no manual means of destroying the union. Turnings made from the end of a tube so lined will curl off the tool so integrally united that the spiral formed shows both textures of the bonded metals as one continuous strip without fracture at any point between the two.

While the greatest industrial possibilities of the process are probably to be realized through its advantages in the production of steel-backed bearings, other practical uses to which tubing so lined may be put cover a wide range, among them tubes lined with non-corrosive metals for conveying liquids whose chemical properties deteriorate steel; tubes used in water tube boilers where a lining metal of high heat conductivity needed.

#### Now Small 5 KW Diesel Generator Set

A SMALL full diesel generator is shown in the accompanying picture. This machine, distributed by F. van Rossen Hoogendyk, Graybar building New York, is powered with a MWM engine of the two-cycle type Benz injection system.

The entire outfit weighs only 1350 pounds and is mounted on a base 45 inches long and 18 inches wide. The set is made for 32-volt, 110-volt and 220-volt currents and is the younger brother of the well-known Colo-Benz sets now in use by the New York Central railroad, the Canada Steamship lines, the South-

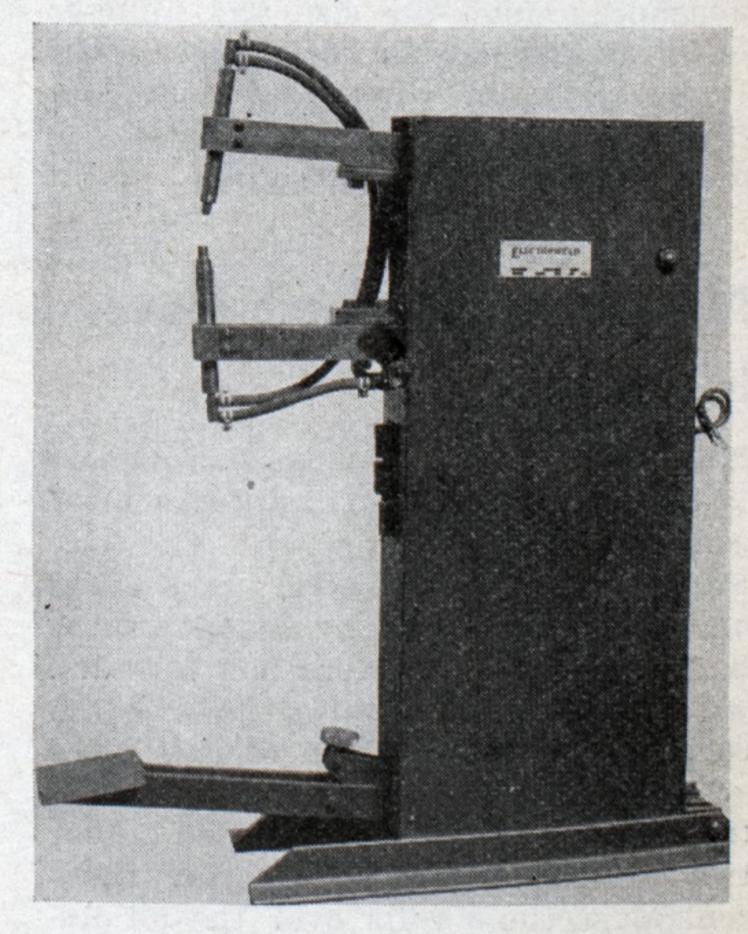


Small Light Weight Generator Set

ern Pacific lines and numerous yacht and vessel owners.

### Resistance Welder Suitable for Spot or Arc Welding

accompanying illustration shows a development of resistance welding machines which is built entirely of steel and electrically welded throughout. This is the universal spot and arc welder developed by the Electric Arct Cutting & Welding Co., Newark, N. J. This machine is made in portable type or for permanent installation. It has a throat depth of 48 inches and can be had with larger depth. The spot welder of 20-kilowatt size will weld two pieces of 3/16-inch steel or will arc weld at 200 ampere capacity with efficient and accurate heat control. By moving a switch, it can be changed from spot to arc welder.



Welding machine for spot or arc welding

### Up and Down the Great Lakes

Passenger Traffic Increases—Charge to Transit Welland Canal—Lake Levels—Ore Movement Improves—Harbors Association Meets—Chicago Port Commission

Plakes this season exceeded all expectations, and is estimated to have reached totals approximately 15 per cent ahead of the 1930 season. Summer travel on boats plying Lake Michigan exceeded the higher expectations of early in the season, according to the transportation companies.

Estimates are that about 500,000 more people used the lake boats for trips between various points on Lake Michigan and on lake cruises originating at Lake Michigan ports than the previous year. As usual, this season saw a large amount of transportation of tourists' cars, which were ferried to various points on passenger boats for continuation of motor tours. Each year more passengers are availing themselves of the opportunity to take combined motor and boat trips.

Despite the increased passenger activity, no plans exist now for further building of passenger vessels. It is understood, however, that some remodeling of existing passenger excursion craft will be done before next season. Fares were reduced on virtually all lines and tours. Some reductions as high as 20 per cent went into effect.

#### Charge for Use of Canal

Ships transiting the Welland canal in future will be charged for use of the waterway, according to a report by Alex J. Grant, engineer in charge. The report follows:

"On and after 12 noon standard time Aug. 24, there will be a charge for services of linesmen levied against every vessel entering the locks of the Welland ship canal, except vessels owned and operated noncommercially and vessels owned and operated by contractors of his majesty or their agents, in connection with the Welland ship canal construction, and shall be payable in cash to the officer in charge for the time being of the statistical office at Port Weller or Humberstone, as follows:

1. For each complete passage through the canal, vessels whose overall length does not exceed 100 feet, a rate or charge of \$5; all other vessels, not otherwise excepted above, a rate or charge of \$10.

2. For each passage through part of the canal, half the rates or charges set out above.

On nonself-propelled vessels being towed in the canal the foregoing rates

or charges will be based on the overall length of the vessels being towed, and no rate or charge will be made against the tug or tugs doing the towing of such vessels.

Directors of the Detroit & Cleveland Navigation Co. have omitted the regular quarterly dividend of 20 cents a share payable in September. It was stated officially that the omission was necessary because of a decrease in the company's gross income.

#### August Lake Levels

The United States Lake survey reports the monthly mean stages of the Great Lakes for the month of August as follows:

Foot above

	n sea level	
Superior	602.38	
Michigan-Huron	578.93	
St. Clair	574.23	
Erie	571.52	
Ontario	244.89	

Lake Superior was 0.12 foot higher than in July and 0.52 foot lower than the August stage of a year ago.

Lakes Michigan-Huron were 0.21 foot lower than in July and 2.21 feet lower than the August stage of a year ago.

Lake Erie was 0.18 foot lower than in July and 1.54 feet lower than the August stage of a year ago.

Lake Ontario was 0.38 foot lower than in July and 2.57 feet lower than the August stage of a year ago.

#### Ore Movement Improves

According to a report of the Lake Superior Iron Ore association, the movement of ore during the month of August showed some improvement over that of July. During August, 5,064,687 tons were shipped as compared with 825,699 tons shipped for the same month last year. This represents a drop of 38.62 per cent. July 1931 registered a decrease of 42.28 per cent over the same month last year. The seasonal movement to Aug. 1 amounts to 15,774,007 tons as compared with 32,575,921 tons for the same period in 1930, representing a drop of 51.58 per cent.

Balance of ore on Lake Erie docks on Sept. 1 was only 200,000 tons more than at the same time last year. On Sept. 1, 1930, the balance on docks was 5,540,776 tons as against 5,685,751 Sept. 1, 1930.

Based on the past and present tenor of the ore movement, it is fairly certain that the total movement for the 1931 season will be less than 25,000,000 tons, the smallest since 1921.

#### May Form Committee

Efforts by several groups in Chicago are being made to have an advisory committee function with the Chicago regional port commission, which was created to clear the way for construction of harbor facilities in the Chicago area.

The harbor commission now is making a survey of laws to reveal any existing entanglements among governing bodies over control of waterways, the rights of various cities to construct harbor facilities, and similar matters, preparatory to the submission of a port plan for consideration. Maj. Rufus Putnam, director of the commission, has notified the groups that a civic advisory committee to counsel the commission would be looked upon with favor in the commission personnel. It is expected the proposed regional port commission will be made into a permanent port authority.

### Plan Active Support of Lakes Improvements

The tenth annual meeting of the Great Lakes Harbors association was held at Hotel Statler, Cleveland on Sept. 10 and 11. The delegates determined on a program of active support of harbor and lake improvements in the Great Lakes district, including the deepening of connecting channels. At the final session a petition calling on congress to speed all construction work on Great Lakes harbors was sent to Washington by the association.

William George Bruce, Milwaukee, was reelected honorary president to represent the United States and C. Alfred Maguire of Toronto was chosen honorary president to represent Canada. Other officers were elected as follows: Daniel Webster Hoan, mayor of Milwaukee, president; John Stevenson, Detroit, Joseph Gibbons, Toronto, H. S. Wells, Depere, Wis., Fred Newman, Picton, Ont. and George E. Hardy, Toledo, vice-presidents. All were reelected except Mr. Hardy. R. F. Malia, Milwaukee, was elected secretary. The association headquarters are at 207 East Michigan street, Milwaukee.

### Personal Sketches of Marine Men

Col. E. C. Carrington, President and Chairman, Hudson River Navigation Corp.

By L. E. Browne

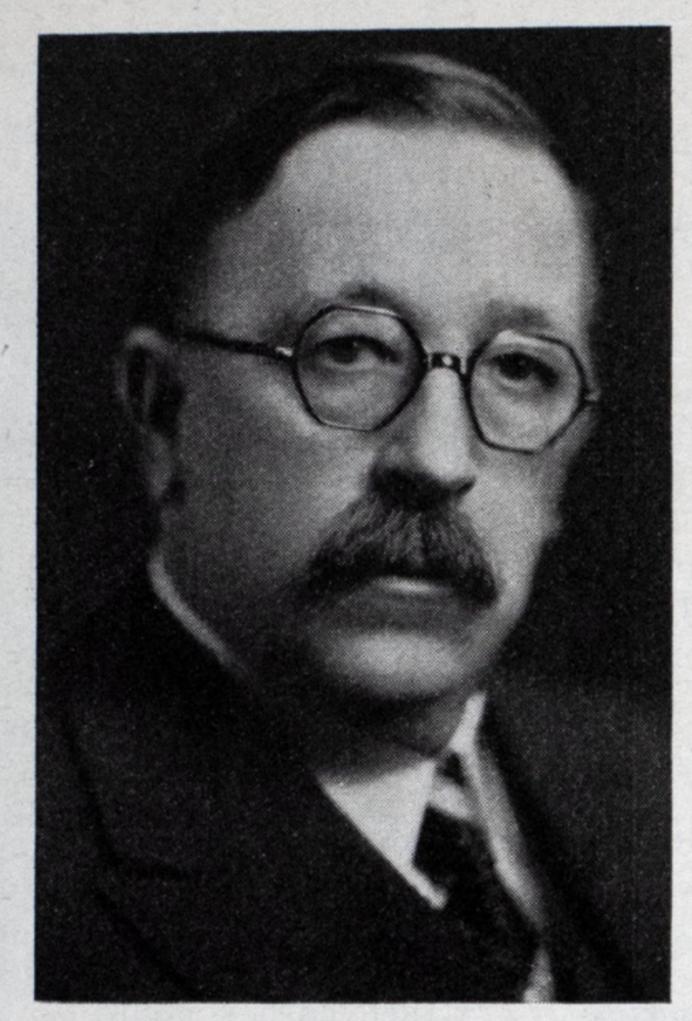


Photo by Blank & Stoller

BY APPLYING common sense business methods in steamboat operation he has turned losses into profits and improved the service.

WITHOUT previous experience in operating steamships his ability to get and hold capable men has had much to do with his success.

A NARDENT proponent of the All-American route from the lakes to the Atlantic, he has secured influential support for this plan.



TARTING his career as a lawyer, specializing in corporation law, Col. Edward C. Carrington, chairman and president of the Hudson River Navigation Corp., 27 William street, New York, soon found himself active in the business world,

a physician to sick business ventures. He has been cracking "hard nuts in the business world" since. He was sent to New York by a group of Baltimore bankers, after practicing law in that city for more than a score of years, to reorganize a business venture which was losing money. He reorganized the business, but never returned to Baltimore; soon being engaged in business at New York where he has made his headquarters since.

Heading a group that purchased the Hudson River Night line properties in February, 1926, for \$4,200,000. Col. Carrington, without previous experience in operating a line of steamships, started reorgaization based on sound business principles. The line was in financial difficulties when he took over the business and was losing money. Now it is making a profit.

First tieing up two boats, Col. Carrington devoted himself to building up the organization, improving the personnel and raising morale. Nothing of a drastic nature was attempted, but service was greatly improved at all points on the Hudson river between New York and Albany. Asked how this was accomplished, Col. Carrington laughingly makes the only comment, "by applying common sense business methods." He admits no great experience in operating end of the steamship business, but knows how to get and hold men who do. He is a steady traveler on the Hudson River Night line which operates five boats. A close observer, he quickly notes possibilities for improved service and such improvement always follows, the change being made through the proper operating officer. Col. Carrington never gives an order aboard ship. If he inspects the kitchen with a guest, he firsts asks the permission of the steward. If he wants to ask a friend to visit the pilot house, he asks permission of the captain. All orders go direct to the officers in charge.

In addition to being president of the Hudson River

Navigation Corp., he is chairman of the board and director tor of the Hudson River Steamboat Co., operating one Hudson river steamer.

As chairman of the Great Lakes-Hudson Waterways association, Col. Carrington has been the foremost advocate of the all-American canal waterway to the middle west. Believing that this plan is more feasible than the proposed St. Lawrence river route. He has labored long and steadily for the adoption of the plan, demonstrating the advantages of the existing New York State Barge canal.

Realizing the importance of selling this idea to the lake ports, Col. Carrington organized an inspection party of middle west business men, city officials and shippers and conducted the delegates over the proposed route, his idea being met with enthusiasm. He is promoting the all-American route largely at his own personal expense, feeling that increasing use of the state barge canal by lake shippers, will ultimately result in use of the canal to capacity with demands for improvements and development to follow. He is an energetic, dynamic and logical worker for this route and at the start, with many favoring the St. Lawrence project, found himself without strong support, which, however, he has since secured in cities along the Hudson and upstate New York, as well as at Great Lake ports.

A native of Baltimore, he was born, April 10, 1872, the son of Edward and Florida Troupe (Harrison) Carrington. He was educated by private tutors and was admitted to the bar of Maryland in 1894, starting practice at Baltimore as a member of Carrington & Carrington, specializing in corporation law. He married Ethel Stuart Coyle at Baltimore, Oct. 5, 1899.

In addition to his activities as head of two Hudson river steamboat lines, Col. Carrington is president of the Eastwood Wire Corp., Hammond, Ind.; vice president and director, Americana Corp., and president and director, Asset & Securities Corp.

His hobby is fishing and his office is filled with trophies. His success in the business world is largely based on "organize, deputize and supervise."

### Westinghouse Executive Dies in Pittsburgh

Dr. Harry Phillips Davis, 63, vice president and director of the Westinghouse Electric & Mfg. Co. and chairman of the National Broadcasting Co., one of the country's foremost engineers and executives, died at his home in Pittsburgh on Sept. 10. He had been ill for several months following an operation.

Under his engineering leadership many important advances of the electrical art were made, these relating to meters, measuring instruments, circuit breakers, railway control apparatus, transmission equipment and radio. He developed nearly 80 patents on electrical apparatus.

For more than 21 of the 40 years during which he was connected with the Westinghouse company, Dr. Davis was in charge of the company's engineering department and for 15 years directed its engineering and manufacturing operations.

His ability as an executive which was on par with his record as a creative design engineer, was ably demonstrated during the World war when he took complete charge of all the company's government contracts for munitions. Despite every handicap he completed the contracts with the record of not having broken one promise.

He was active in every phase of radio, and was widely known for his development of radio broadcasting.

William C. Sheehan, former city passenger agent of the United States lines, New York, on Aug. 25 joined the Lloyd Sabaudo line, in the same capacity, with headquarters at 3 State street. Mr. Sheehan is widely known in the steamship business here and abroad, having passed several years in Italy, Greece and Great Britain for American steamship companies.

### Changes Announced in Worthington Staff

H. G. Wood, formerly assistant manager of the New England division of the Westinghouse Engineering & Mfg. Co., has joined the Worthington organization in the capacity of electrical sales engineer.

A. M. Boehm goes to Kansas City as diesel and gas engine specialist. He formerly was in the sales department at Buffalo works. Joseph F. Hecking, formerly with the diesel engine sales division in New York, has been assigned to the diesel and gas engine sales division at Buffalo. William J. Daly, assistant manager Cincinnati works sales division, has been assigned to Pittsburgh on special sales work. G. A. Herrmann,

formerly sales engineer at Chicago, has been appointed acting district manager at St. Paul.

W. R. Kennedy, sales engineer at Pittsburgh, has been appointed acting district manager at Kansas City.

J. B. Allen, formerly president of the Allen Engineering Co., Bridgeport, Conn., and prior to that time with the Sperry Gyroscope Co., Brooklyn, N. Y., has been appointed special marine representative with headquarters at Harrison, N. J.

John S. Bleecker has been appointed manager of sales of Lukenweld, Inc., division of Lukens Steel Co., Coatesville, Pa. Since 1928 Mr. Bleecker was engaged as a professional engineer in industrial and public utility work, specializing in transportation and merchandising. Prior to that his activities had been confined for many years to executive management of many enterprises for Stone & Webster, Day & Zimmerman and Bates, Inc.

### Shipping Board Member Dies Suddenly

James Lee Ackerson, director of the bureau of construction of the United States shipping board, died suddenly on Sept. 13 of a heart attack suffered while playing golf at the Chevy Chase club, Washington. He died before medical aid could be summoned. Burial took place in Arlington cemetery, Washington. He was 50 years old.

Mr. Ackerson was appointed from Michigan to the United States Naval academy, and was graduated in 1901. He was selected for the construction corps of the navy in 1903 and sent to the Massachusetts Institute of Technology at Boston for post-graduate work in naval architecture. In 1906, he was assigned to duty at the New York navy yard in Brooklyn, where he remained for four years. He was then ordered to Washington and assigned to the navy's bureau of construction and repair, remaining until 1915. During this time he was in charge of designing new naval vessels.

He later served at Mare Island navy yard but resumed his duties in the bureau of construction and repair when the United States entered the World war. During the war Mr. Ackerson's services were loaned by the navy to the shipping board, for which he acted as consultant on technical matters pertaining to ship design and construction. He returned to the shipping board in February, 1930, after having been connected for several years with the Winchester Arms and Harriman Shipbuilding interests.

Mr. Ackerman is survived by his widow, Mrs. Martha B. Ackerson, and his mother, Mrs. John Monroe.

### Lloyd Captain Retires After Long Service

Captain Adolph Winter, who entered the service of the North German Lloyd in 1895, sailed on his last journey as master of the steamer Stuttgart when she left New York on Sept. 3, having reached the retirement age.

Born in Osnabrueck in 1867, Captain Winter sent to sea at the age of 15 on board the full-rigged ship Her-MANN, on which he made a deep water voyage from Bremen to the Far East. He served in various capacities on many steamers of the Lloyd fleet and in 1912 was appointed captain of the steamer LOTHRINGEN, succeeding then to the command of the SIERRA NEVADA. In 1922 he supervised the construction of the steamer Nienburg at the Vulkan works in Stettin. In the years following he commanded the steamers GOTHA, SEYDLITZ, HOLSTEIN, DERF-FLINGER, LUETZOW and in 1928 the STUTTGART.

Seagraphs-Travel Pictures, New York, has been organized to specialize in all types of photography pertaining to the marine industry. All laboratory work will be done at 45 Broadway and photographers will be instantly available to cover emergency events.

Ray Viktorin formerly staff photographer on the LEVIATHAN and chief photographer at the laboratory in the United States Lines' office at 45 Broadway will specialize in motion picture and laboratory work. Arthur Wood, who has traveled extensively and has had wide experience as ship photographer on the West Indies cruise liner Republic and on the steamship Belgenland on her round-the-world trip, will cover important travel assignments. Harry Bottrell, because of his wide acquaintance with the marine field, will contact the indus-Mr. Bottrell is an expert on natural color photography and this is now for the first time available to ship owners, operators and shipyards.

Otto Nonnenbruch, for the past four years chief engineer of the diesel department of I. P. Morris & De La Vergne, Inc., Philadelphia, and prior to that with Worthington in various capacities for nine years, rejoined the latter organization as of July 1. Mr. Nonnenbruch will make his headquarters at Buffalo as special sales representative.

The total value of merchandise shipped from one foreign country to another via United States ports in 1930 is reported by the department of commerce at \$31,622,000, of which \$26,111,000, or approximately 83 per cent, moved via New York.

### New Trade Publications

PNEUMATIC TOOLS—Through its export manager, W. J. Linn, the Cleveland Pneumatic Tool Co., Cleveland, has issued a new French catalog, which is a model of good technical translation. The catalog is neatly arranged with clear type and is replete with illustrations representing the hundreds of products of the Cleveland Pneumatic Tool Cleveland Rock Drill Co., both of which manufacture all kinds of pneumatic-operated tools, machinery and accessories.

ject of a bulletin published by the Babcock & Wilcox Co., 85 Liberty street, New York. It outlines the development of marine steam propulsion from low pressure to the present economical use. It also deals with economies of steam in fuel consumption, flexibility of operation and cost of fuel and lubricating oils.

by the Babcock & Wilcox Co., 85 Liberty street, New York, is devoted to description of its forged steel return bend type economizer, designed to provide a high rate of heat transfer and unusual freedom from expansion strains. All details are fully described and illustrated by photographs and drawings. Installation views and setting plans are also included.

ELECTRICAL EQUIPMENT—Recent bulletins by the General Electric Co., Schenectady, N. Y. included the following: Explosion-proof, totally-enclosed, fan-cooled single-phase for hazardous locations; low-speed synchronous motors; mechanical-drive turbines; float switches; magnetic switch; low-pressure blast gates;

time meters; plastic products. Booklets on arc welders and on arc welding are also available.

ACHIEVEMENTS—No. 2 of a series on engineering achievements by the Wellman Engineering Co., Cleveland, portrays the development of the stiff leg unloader for the ore trade and a railroad siding in two layers, both the product of the engineering ingenuity of this company.

eral Electric Co., Schenectady, N. Y., has issued a number of bulletins on various lines of its equipment, among them the following: Built-in speed reducers for general-purpose, ball-bearing induction motors; direct current motors; mechanical-drive turbines; brakes for direct-current motors; solenoid-operated valves, pole-changing switches, combination magnetic switch; centrifugal air compressors; turbine generator sets; induction motors.

SLING CHAINS—American Chain Co. Inc., Bridgeport, Conn., has prepared a standard sling chain specification book containing information on all standard types of sling chains. It gives specification tables, definitions, cautions and instruction for purchasing. A chart of safe working loads at various angles is included.

PUMPS—Worthington Pump & Machinery Corp., Harrison, N. J., has released the following trade polications recently: Specification sheet W-205-B1 on steam-air injectors for stationary and marine service; W-310-S12A, centrifugal pumps, types CA and CB; W-319-S3, centrifugal pump, type WF; L-711-S3, dry vacuum pumps,

two-stage, feather valve, single horizontal, belt and steam driven; W-112-S15, horizontal duplex pot type, piston pattern pumps for oil.

WELDED GEAR BLANKS—Luken-weld Inc., a division of the Lukens Steel Co., Coatesville, Pa., has issued a bulletin on its welded gear blanks formed of rolled steel. This is a preliminary announcement of this form of gear blank, to be followed by a more comprehensive bulletin. The method of forming the blanks from special steel and advantages of its use form the subject of the publication.

INSULATING FIREBRICK—Bab-cock & Wilcox Co., 85 Liberty street, New York, in a current bulletin describes a type of firebrick it has developed, possessed of high insulating valities combined with refractory characteristics. Curves, sketches and calculations illustrate its characteristics. Advantages of the use of this material are given.

FILTICOOLER—The B. F. Sturtevant Co., Hyde Park, Boston, has issued catalog No. 378 covering its new Filticooler, a product for washing, filtering and cooling air. It is claimed for the Filticooler that it will cool, filter and humidify as much air as a nine foot air washer where both are handling the same amount of air at the same water pressure and with equal air velocities.

ELECTRICAL EQUIPMENT—General Electric Co., Schenectady, N. Y., has issued a number of bulletins, as follows: Photoelectric relay; phase protective panels; fractional horsepower motors; squirrel-cage induction motors; steam turbines; mechanical-drive turbines; oil circuit breakers.

SCALES—The Howe Scale Co., Rutland, Vt., has issued several bulletins covering the Howe Weightograph. One bulletin is devoted to a description of this weighing machine, another deals with the double-reading Model 1710 and a third is devoted entirely to electros and illustrations.

### Business News for the Marine Trade

The Newbelt Steamship Corp., Baltimore, was recently incorporated by W. H. Baldwin, 120 East 42nd street, New York and F. C. Moore, Baltimore representative. The company has purchased the steamer Annette to establish freight service between New York and Baltimore. Pier 44, North River, is New York terminal; former Clyde-Mallory line pier is Baltimore erminal.

The Tidewater Terminal Corp., Norfolk, Va., is expending \$15,000 for improvements to passenger waiting rooms, immigration quarters, pier 1, army base, for Baltimore Steamship Co., Roosevelt line, lessee.

The bureau of yards and docks, navy department, Washington, recently awarded contract at \$159,000. to the Van Gorden Constructing Co., Jacksonville, for improving the break-water at Key West, Fla.

Littrell Construction Co., American Bank building, New Orleans, recently submitted low bid to superintendent of lighthouses, New Orleans, for constructing 800 feet creosoted pile and timber bulkhead at Mobile, Ala.

Baltimore Ship Repair Co., 821-23 Key Highway, Baltimore, plans the construction of a steel machine shop, 30 x 70 feet, at a cost of \$35,000. W. A. Gotthels will erect the building and the Blaw-Knox Co., Bayard and Warren streets, Baltimore, will furnish the material.

The Maryland-New York Steamship Corp. was recently incorporated by Robert Stinson, Baltimore Trust building, Baltimore, to establish a freight line between Baltimore and New York. The Spedden Shipbuilding Co., Inc., Baltimore, is repairing the steamer Comanche, which has been acquired by the new line to inaugurate the new service.

The Union Stevedoring Corp. recently was low bidder for stevedoring at the Philadelphia navy yard, making the ninth successful bid submitted by the organization during the current year. H. C. McClarity is president.

The Winton Engine Corp., Cleve-

land, on Aug. 17 was awarded contract by the United States coast guard service for two marine oil engines at a cost of \$32,456.

Fire which started aboard the steamer Shooters Island Sept. 10 almost wiped out the plant of the Maine Coal & Dock Co., Harriman's Point, Bucksport, Me. The steamer was unloading sulphur to a conveyor when a spark set the sulphur afire.

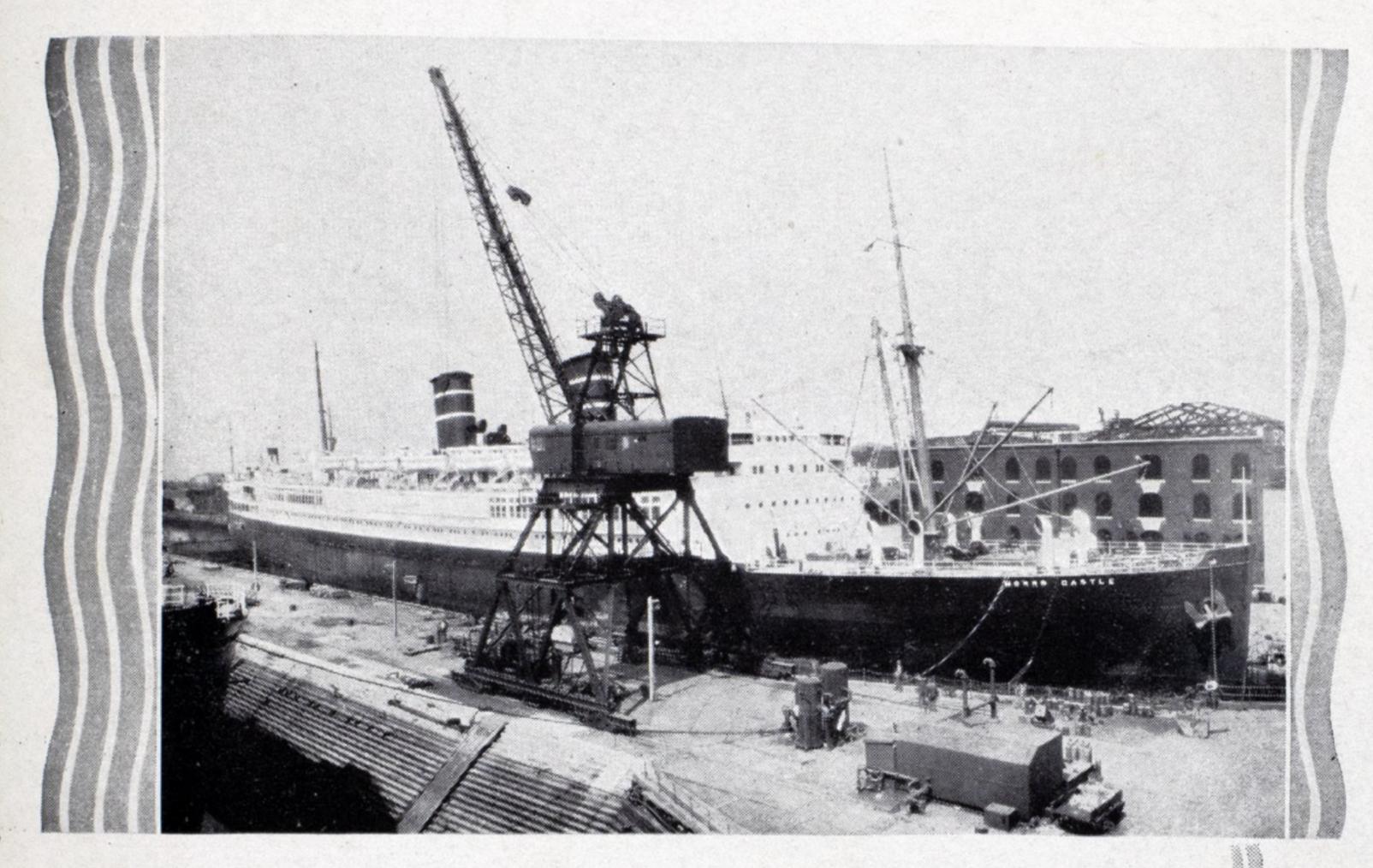
The American Blower Co., Detroit, manufacturer of air handling and conditioning apparatus, has secured a 17-acre tract on Tireman avenue for a new plant. Maturity probably will be next year.

The steamers Point Fermin, Point Bonita and Point Sur have been tentatively selected from the Gulf-Pacific line fleet to operate in the service of the Gulf-Pacific Mail Line Ltd., to which the post office department has awarded a 10-year mail contract covering the route from Pacific coast ports to Puerto Colombo, Kingston and Tampico.

# Matine Review

The National Publication Covering the Business of Transportation by Water

October, 1931



The S. S. 'Morro Castle', smart flagship of the Ward Line in the new graving dock at the Robins Plant of Todd Shipyards Corporation, Erie Basin, Brooklyn, N. Y., for general voyage repairs. The 'Morro Castle' was launched in the summer of 1930.

# TODD Service.... available on all coastlines

Marine owners and operators have the satisfaction of knowing that all three coastlines of the United States are adequately covered at strategic points by Todd Service—and where Todd Standards are rigidly maintained.

Todd facilities and personnel at all Todd Yards on the Atlantic, Gulf and Pacific coasts constitute within each Yard complete, self-contained units for all manner of major or minor

marine repair, conversion or reconditioning operations, either emergency or otherwise, on all classes and sizes of vessels.

TODD SHIPYARDS
CORPORATION

25 Broadway New York



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Robins Dry Dock & Repair Co. Erie Basin, Brooklyn, N. Y.

Todd Dry Dock Engineering & Repair Corporation

Brooklyn, N. Y.

Tietjen & Lang Dry Dock Co. Hoboken, N. J.

Todd Shipbuilding & Dry Dock Company, Inc., Mobile, Ala.

Todd Engineering Dry Dock & Repair Company, Inc.

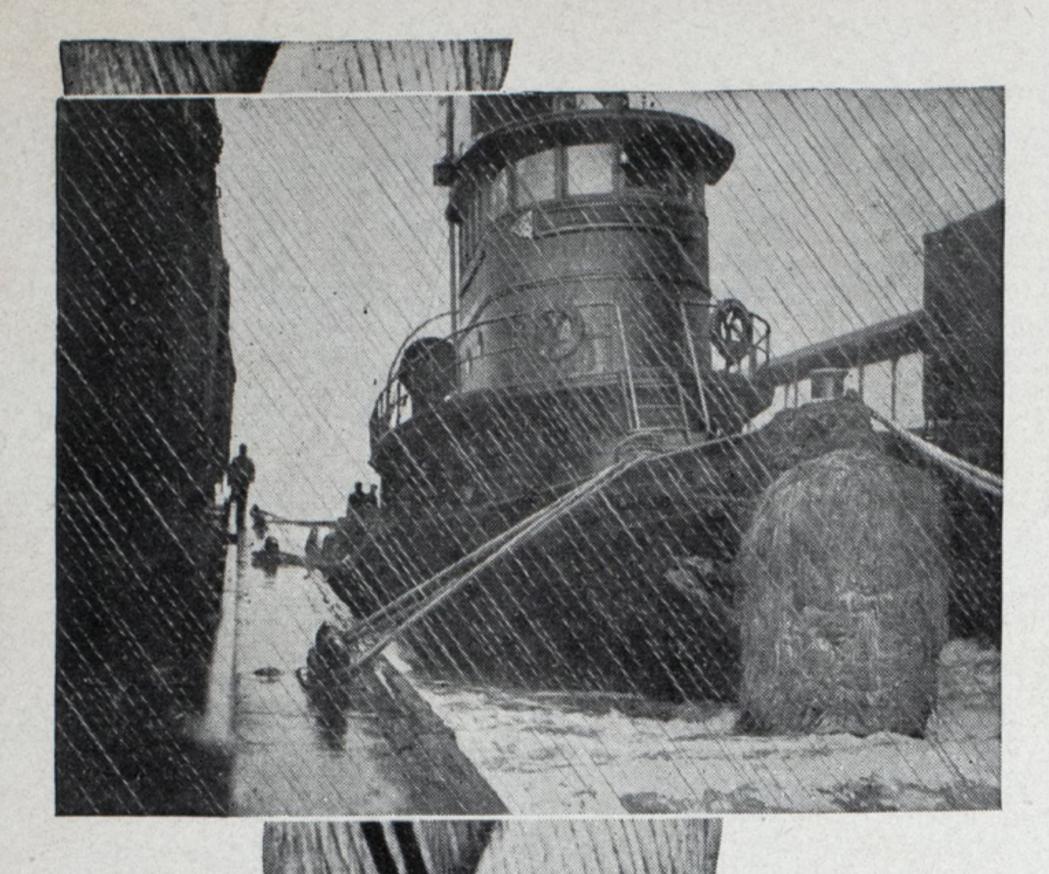
New Orleans, La.

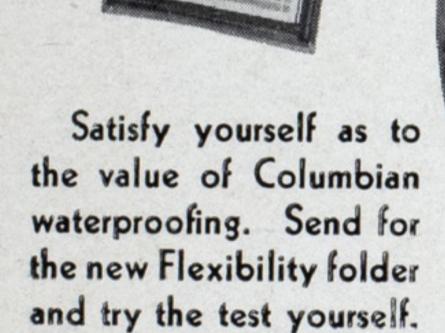
Todd Dry Docks, Inc. Harbor Island, Seattle, Wash.

Todd Oil Burners, Ltd. London, England

24 Floating Dry Docks 2 Graving Docks 3 Shipways

Todd Unit System of Burning Pulverized Fuel Todd Fuel Oil Burning Systems





# What WATERPROOFING Really Means

The greatest improvement in modern Manila Rope is the waterproof feature and its advantages are numerous.

It makes it easy to handle in all kinds of weather and under all conditions. The tug-boatman, ready to throw a Columbian line can handle it just as easy, whether it has been soaked for hours or if it is dry.

Waterproofing keeps out the germs of decay and rot which usually enter with moisture.

It makes a rope retain its flexibility even though wet.

It contributes toward the non-kinking property of a correctly balanced rope.

It adds to the life and service of the rope.

The Columbian Rope Company has perfected a method of waterproofing the individual fibres which retards the entrance of moisture into the rope and greatly reduces the tendency of the fibres to swell. The result is a rope which remains flexible and in good working condition even after immersion in water for an indefinite period.

In addition, Columbian is properly lubricated to reduce the friction of the fibre and yarns against one another when in actual use. This feature gives to Columbian Tape-Marked Rope that long life and durability which makes it the envy of the industry.

When it comes time for refitting, don't forget the advantages offered by Columbian.

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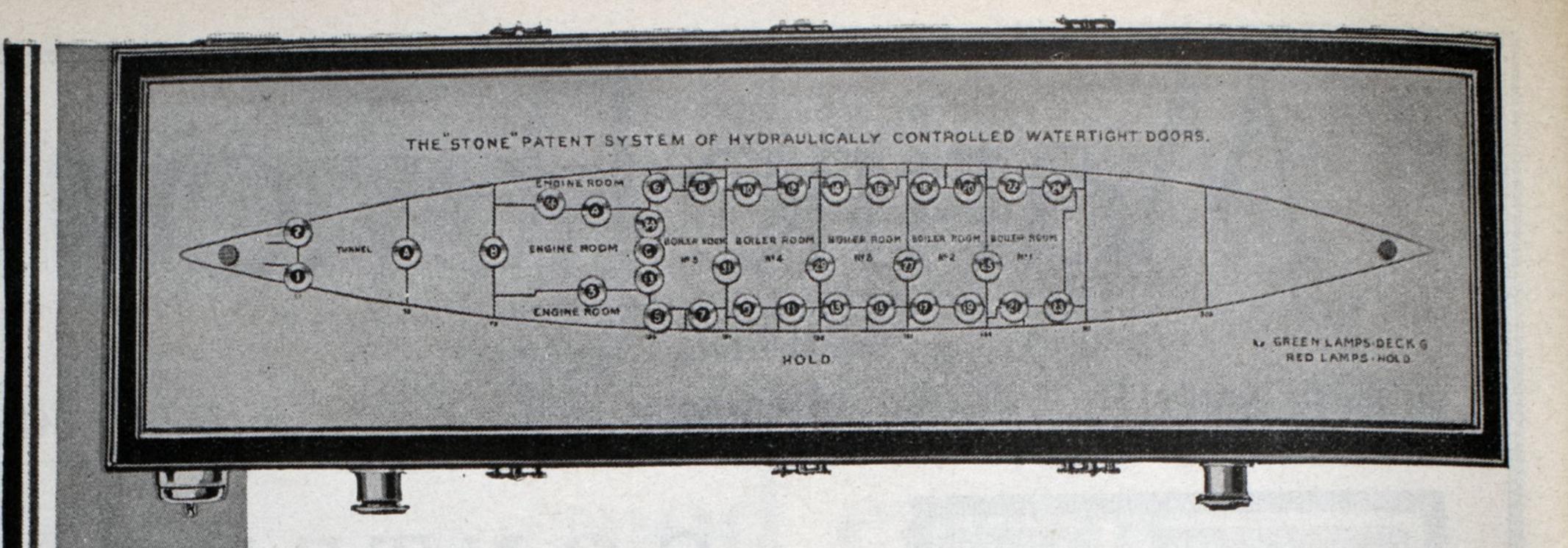
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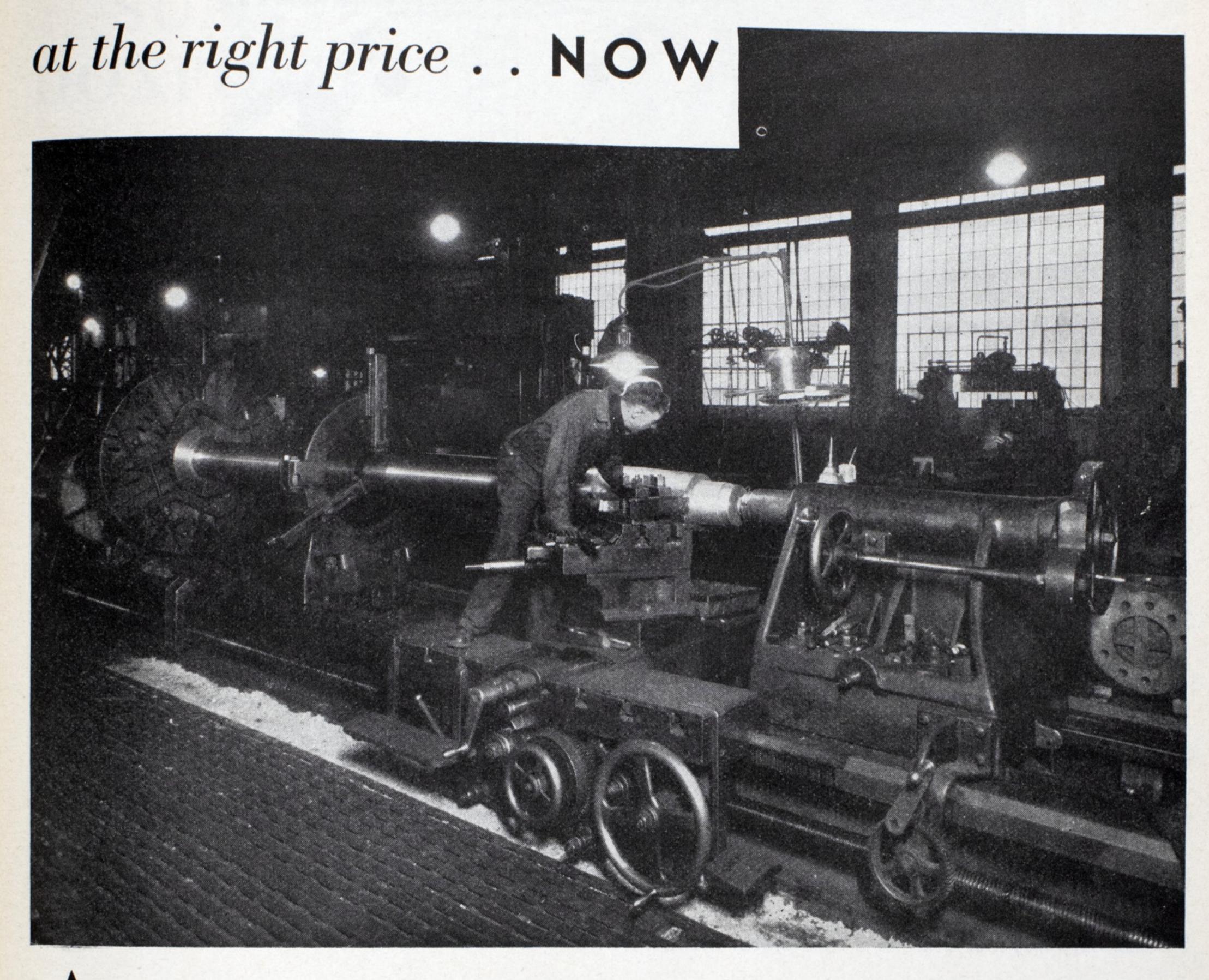
The foremost Naval architects are specifying the Stone System because of its

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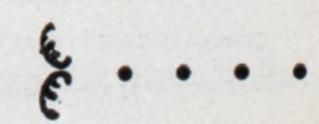
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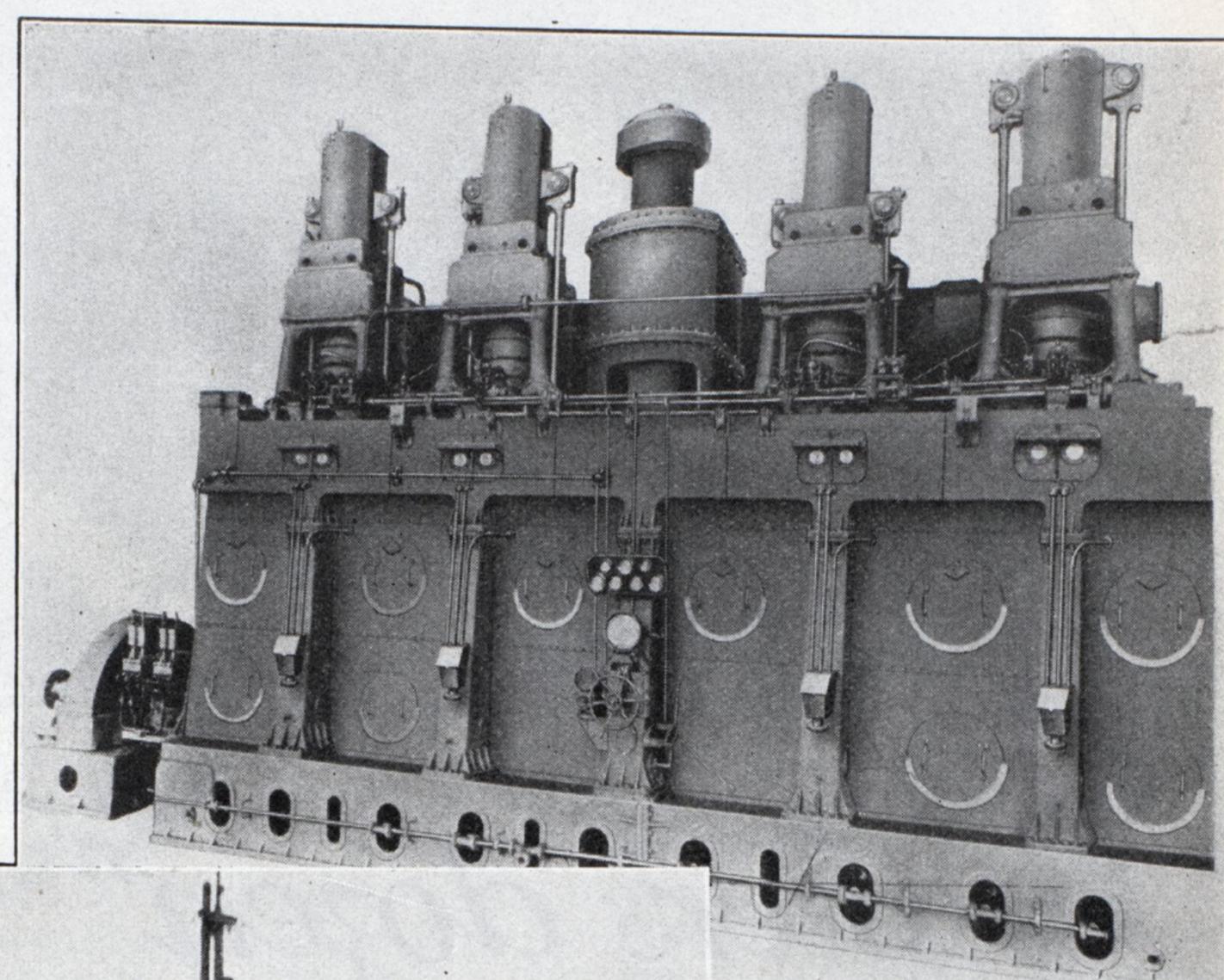
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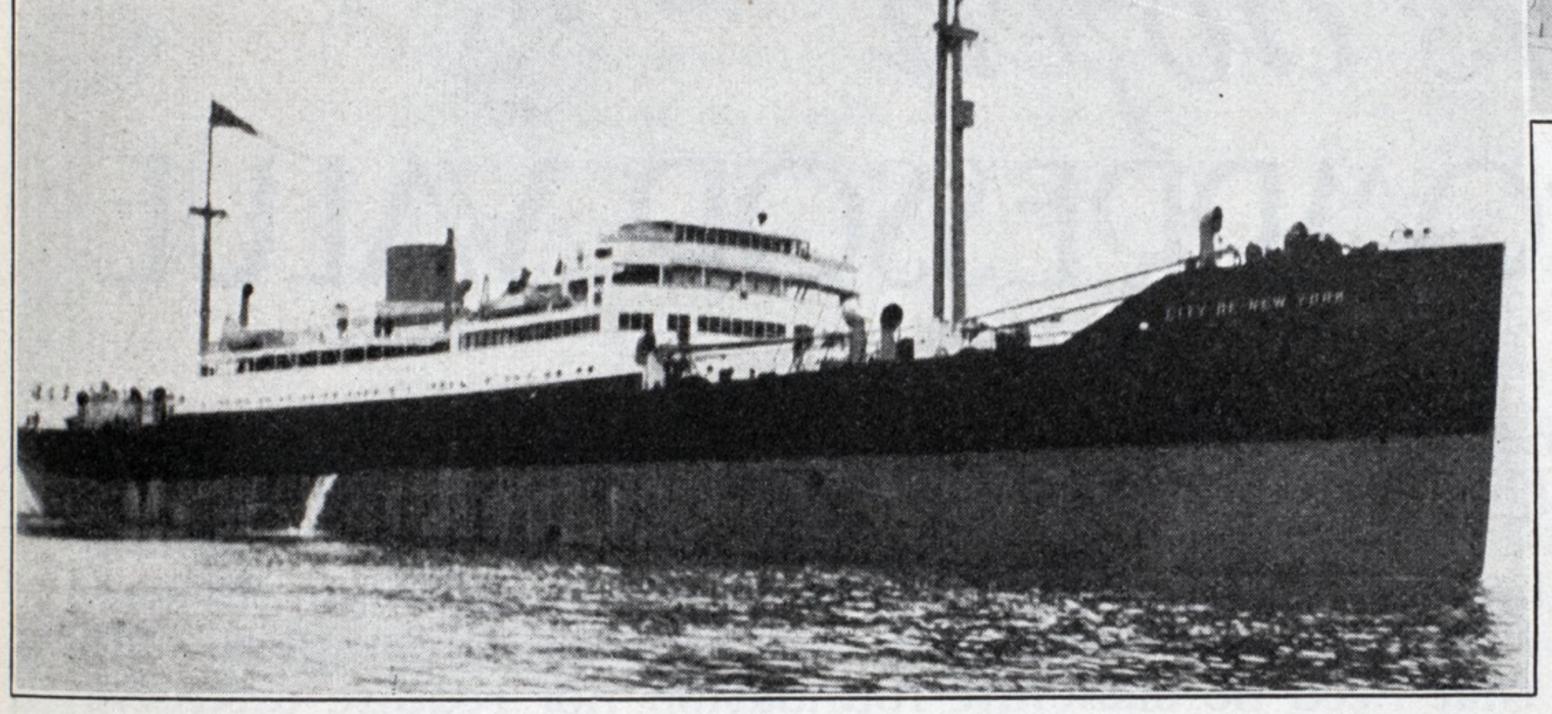
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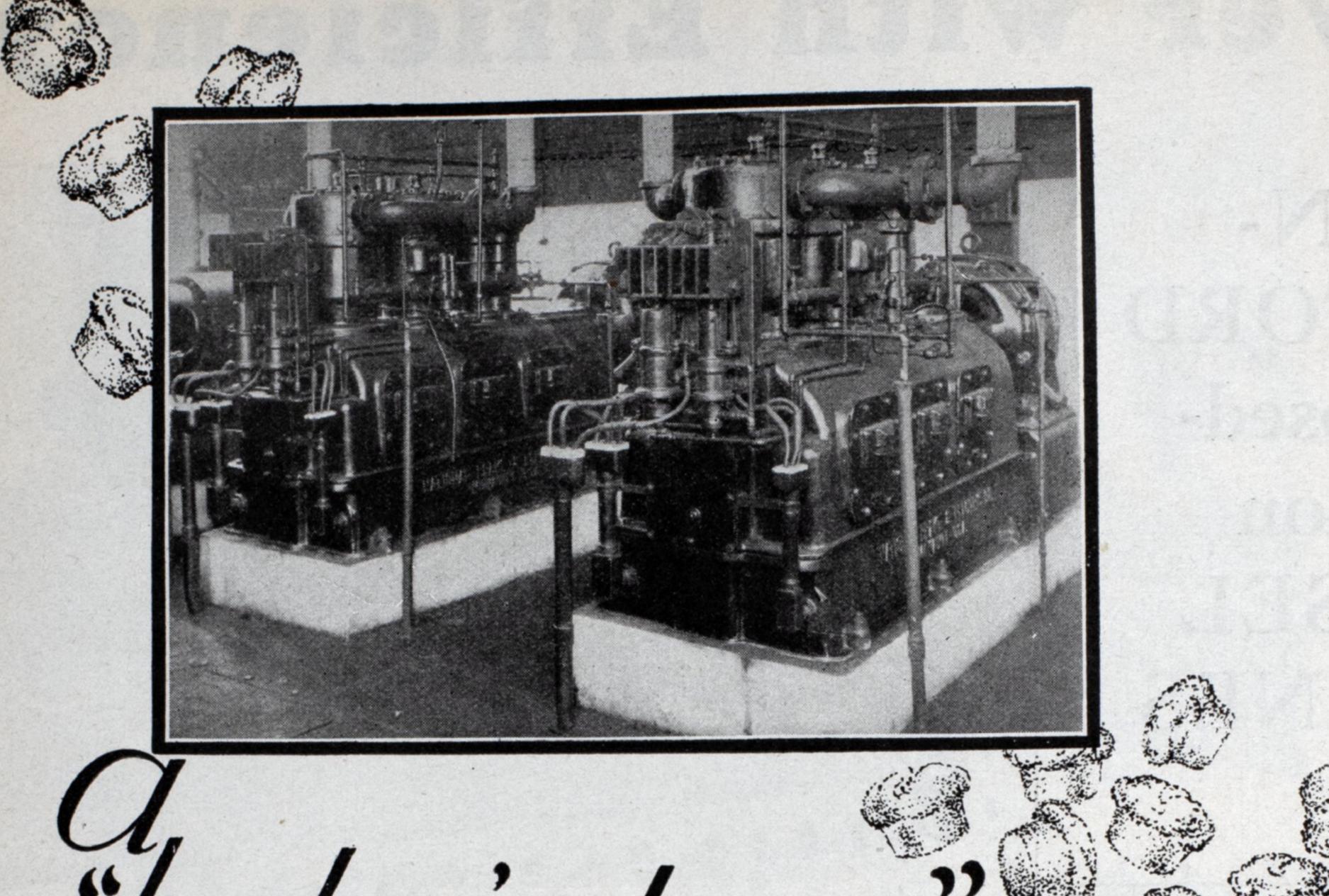


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"baker's dozen" Sala in AIR COMPRESSOR VALUE

JUST as the old-time baker threw in an extra bun for good measure, so the builders of Westinghouse-National Air Compressors add extra value to the machines they build . . . They save valuable space for the user by designing compact machines that are driven direct by the motor or through efficient herringbone gearing . . . they save installation cost by making complete self-contained machines that need no elaborate foundation nor require extensive auxiliary apparatus . . . they save operating expense by providing complete Automatic Control of distinctive type—which insures that the power consumed will be in proportion to the air compressed . . . they save maintenance expense by building durable machines that will operate for a score of years with minimum time and material for attention and upkeep—thus maintaining the noteworthy tradition of "Quality Machines for Quality Service"—for every pneumatic purpose aboard ship or ashore.

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# COMING!

# November Diesel Engine Issue

#### Featuring American Built Oil Engines

#### Diesel Engine Section Annual Feature

To focus the minds of responsible men in the shipping business on the applications of diesel engines, MARINE REVIEW every year devotes a two color section in its November issue exclusively to diesel propulsion. Because it contains accurate, definite information on a large number of different types of vessels, this November Diesel Engine Number is widely read by steamship owners, managers and operators, naval architects and marine engineers, who subscribe regularly to MARINE REVIEW.

American marine diesel engines and auxiliaries are completely described and illustrated. A full editorial page is utilized for each engine together with a picture and data of each ship in which that

particular engine is installed. The section is printed on india stock in blue and green.

The November Diesel Engine Number will be distributed to all important marine men while many of them are giving serious consideration to new shipbuilding and conversions of present ships. It will give to these men the only complete diesel engine data of its kind to be found anywhere under one cover.

This issue has been built up over a period of years as a reference directory of diesel engines and their direct applications. The advertising value is everywhere recognized.

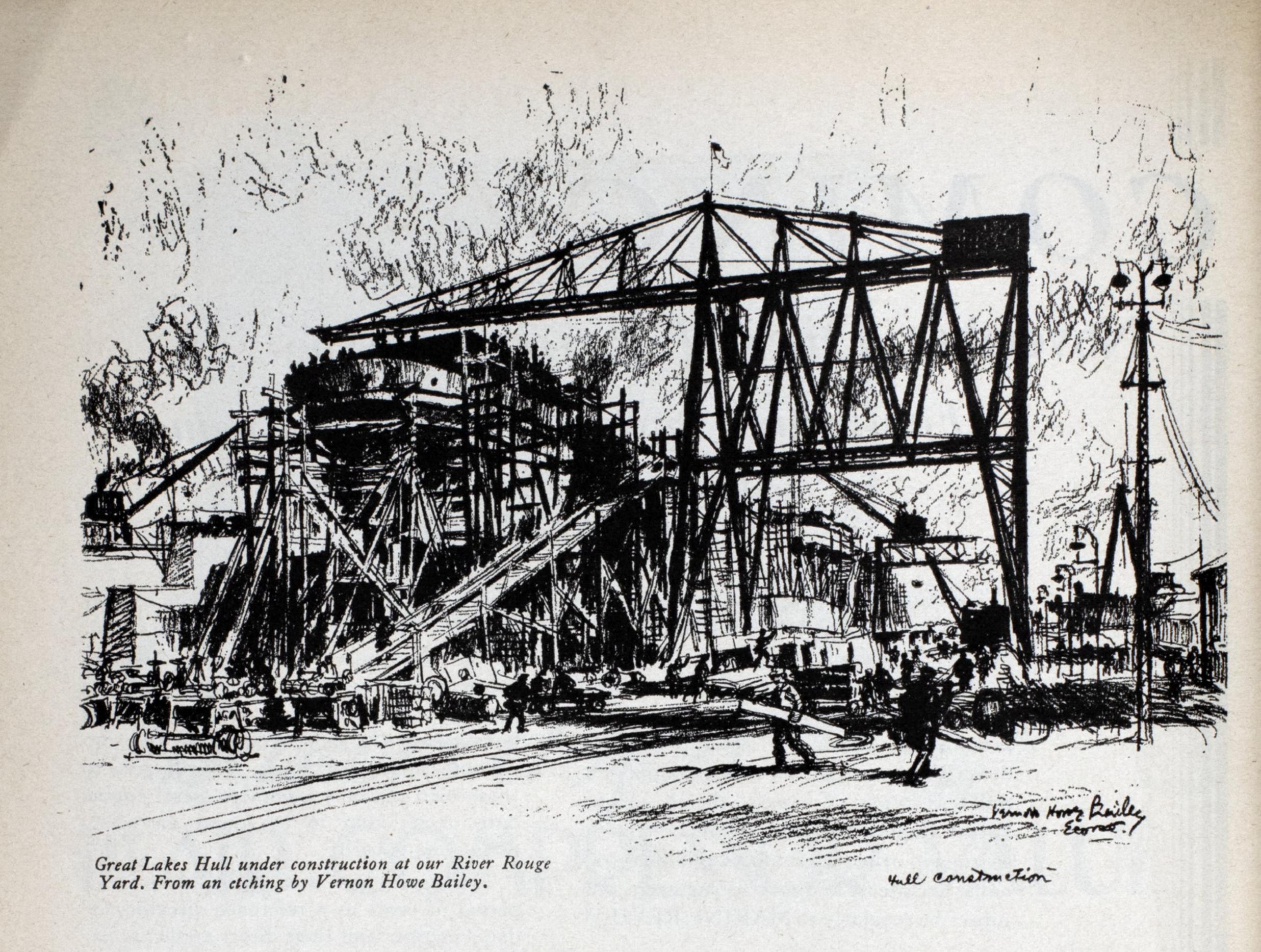
Time rolls around very quickly, so we urge you to make your space reservation at once. Insert forms close October 20th.

#### Prepare Your Advertising Now!

If you have a product or service you want to bring to the attention of Marine Men make sure your advertisement appears in the Diesel Engine Section of the November issue of MARINE REVIEW.

# Marine Review

220 Broadway New York City Penton Building Cleveland, Ohio



# HIGHEST STANDARDS

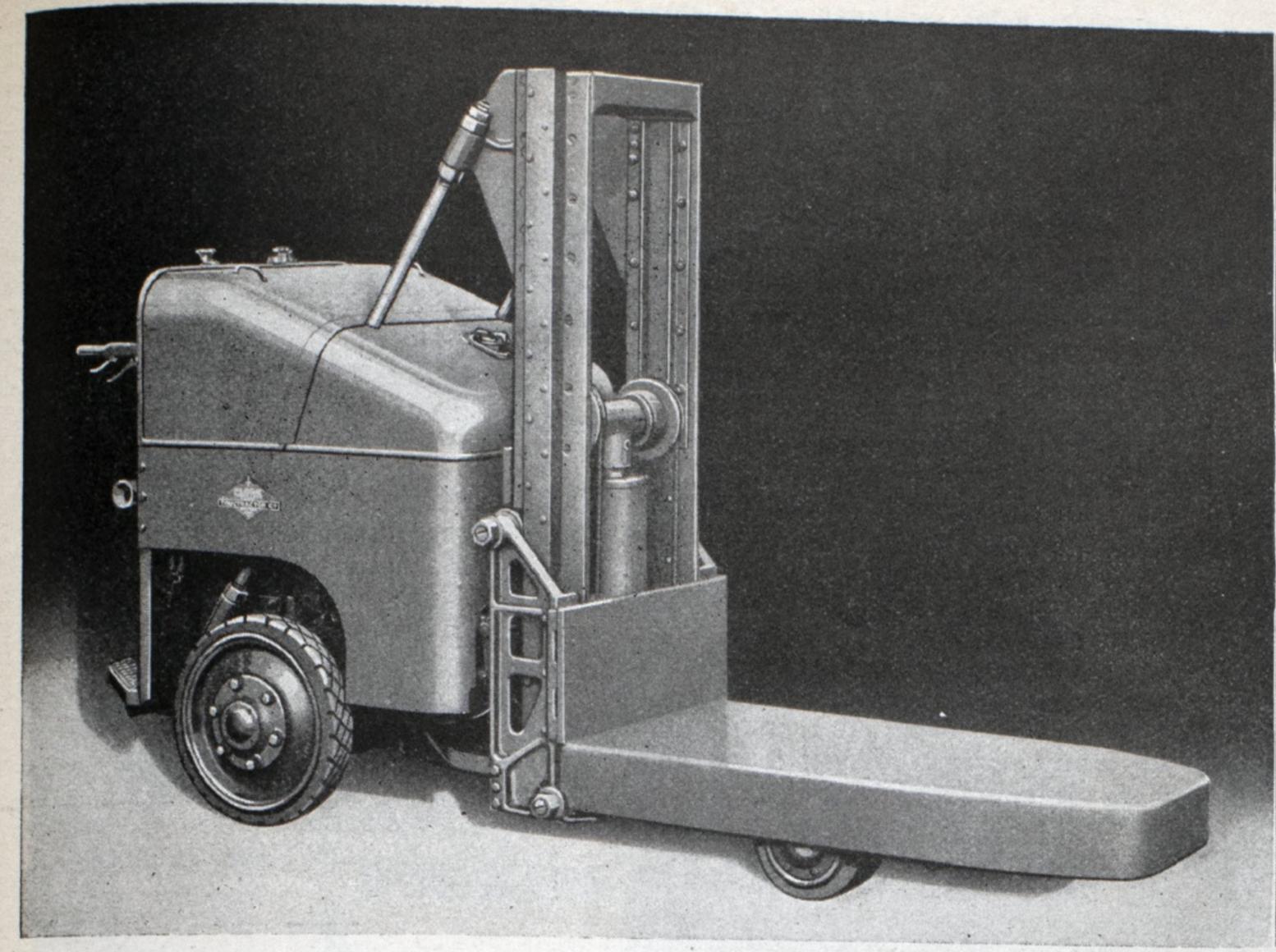
of workmanship, engineering and service are ever apparent in Great Lakes built ships and engines—and repairs.

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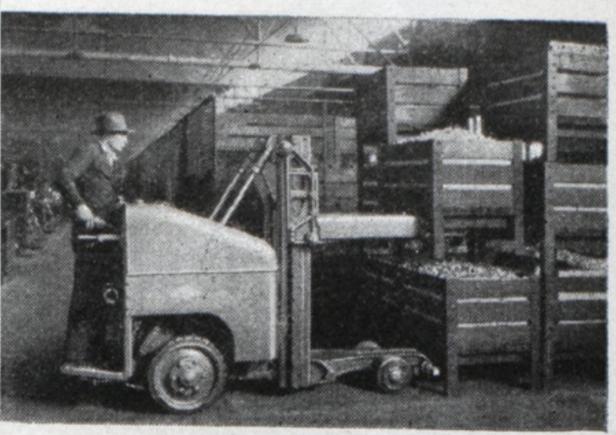
Engine Works Equipped
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River Rouge, Michigan Cleveland Office: Union Trust Bldg. Complete Shipbuilding
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Ashtabula, Ohio



Clark "Tructier"—low model takes load into box car, tiers it where it's to ride—and comes out quickly for another load.



Rear wheel drive and 4-wheel steer enables driver to position load accurately. Convenient, automatic controls.

Agile—it turns the corner of two intersecting 64-in. aisles with ample clearance. Two models—one tiers to 3 ft., the other to 6 ft.

# Innouncing The NEW Clark Tructier Sew in design New in performance.

A-wheel steer drive
Rear wheel drive
QA-hour continuous operation
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ing radius

At last—a tiering truck of 3-ton capacity, direct gas driven—with 4-wheel steer—so agile that it turns in a 94-in. radius—loads box cars, threads narrow aisles, climbs ramps, takes its load into 'tween-deck space and tiers it safely. No other tiering truck offers all these advantages—no other tiering truck cuts costs so deeply in loading and unloading operations and in shipyard and machine shop duty.

Ask for bulletin describing these two new tiering machines and two new Clark "Truclifts".

The Clark Tructractor Co.

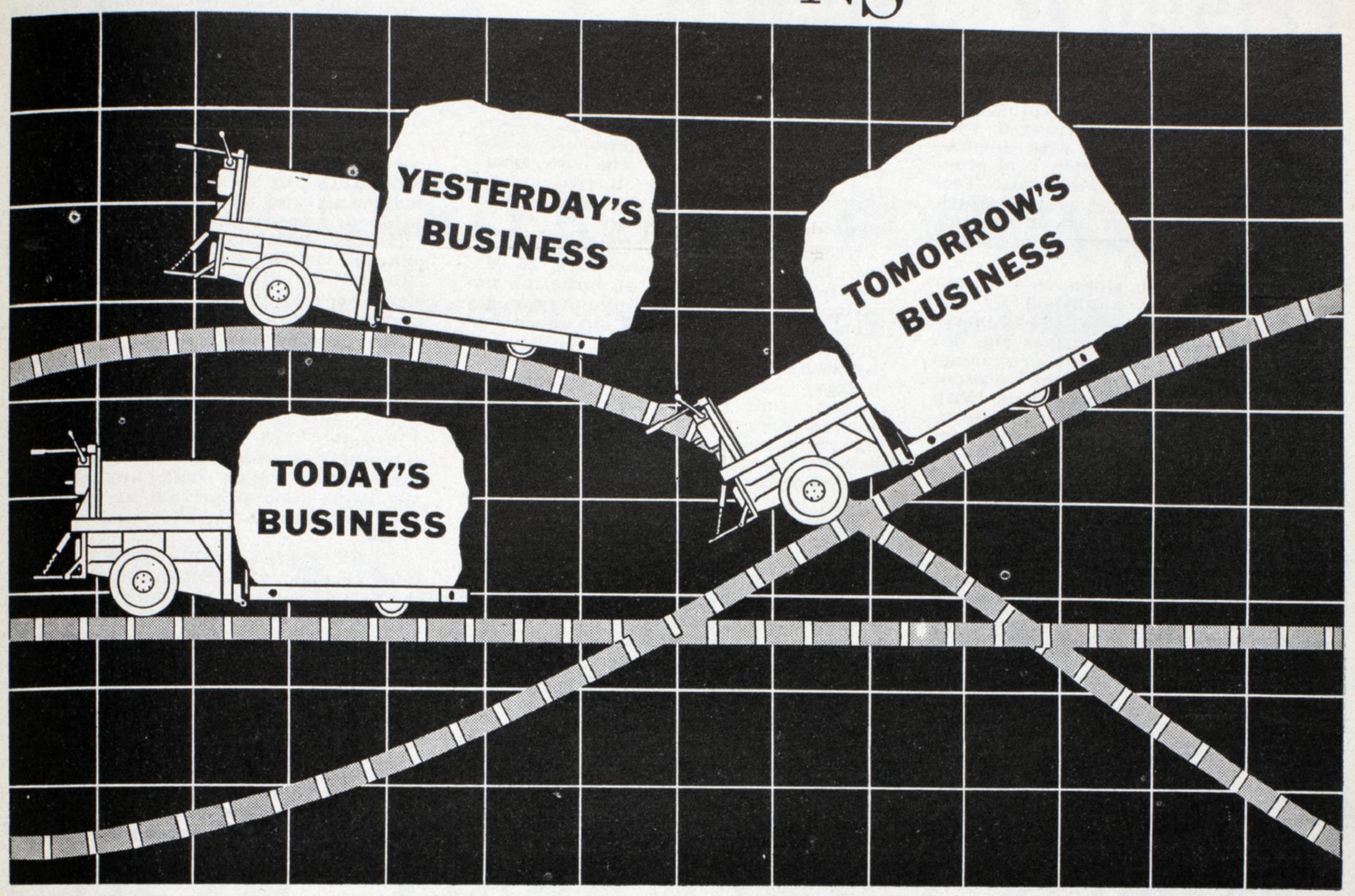
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ADVERTISEMENT
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Battle Creek, Mich.

Speed cargo handling

A ship earns money at sea —not at the wharf

# In the UPS and DOWNS of Business



## Elwell-Parker affords greater handling flexibility

DURING piping times of plenty, every available dock and terminal facility is in active use.

But when shipping slows down, contraction takes place. Cargo formerly moved a 1000 feet may need be moved only half that distance. Warehouse space in active use is cut down, and yet the handling problem remains, even though demand is light one day and heavy the next.

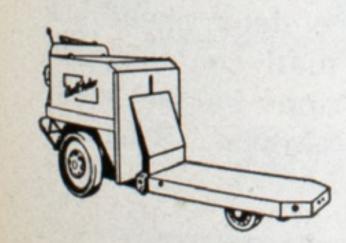
Elwell-Parkers give you greater handling flexibility in good times and slow. For cargo handling they need no fixed stopping or starting points. They short-cut whenever

necessary. Today they may make a 1,000 foot run from shipside to warehouse. Tomorrow they will operate just as efficiently in moving cargo half that distance. Today they may unload a ship full of goods—tomorrow they will unload only half a ship load with equal facility.

Consider your handling problems with an eye to the ups and downs of business. Install those machines that

Four-Wheel Steer. Elwell-Parker Electric Trucks steer with all wheels. This feature makes possible easy operation in narrow aisles and quick turning around short curves. give the greatest flexibility year in and year out. Right now, when greater service must be given on reduced volume, you probably have need for one or more Elwell-Parkers to enable you to meet today's demands at a profit.

The nearest Elwell-Parker Field Engineer will gladly study your handling demands in the light of present and future needs. His recommendations will be based on Elwell-Parker experience of over a quarter of a century in solving handling problems. Write The Elwell-Parker Electric Company, 4200 St. Clair Avenue, Cleveland, Ohio.



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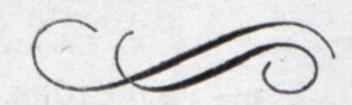


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Made in BRONZE, STEEL and SEMI-STEEL



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MARINE PUMPS

"The Dean of Pumps on Land and Sea"

Single Style & Duplex Piston Type & Plunger

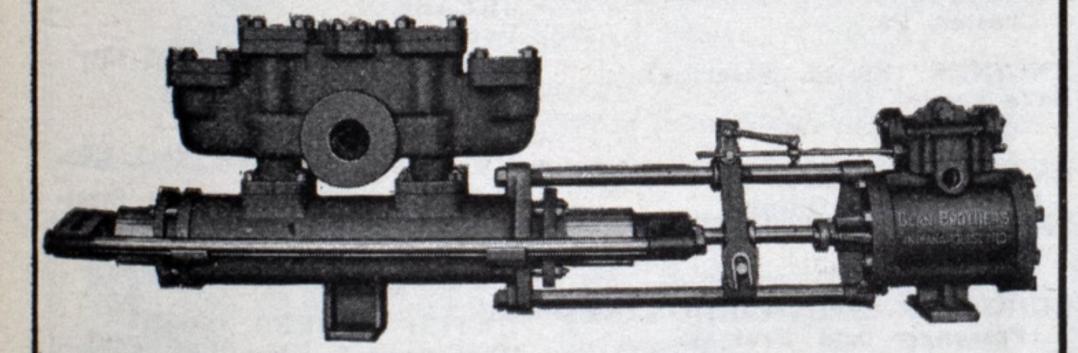


Figure No. 2311 Horizontal Single Style Double Acting Outside End Packed Plunger Trombone Pot Valve Pump For Boiler Feed & Pressure Service.

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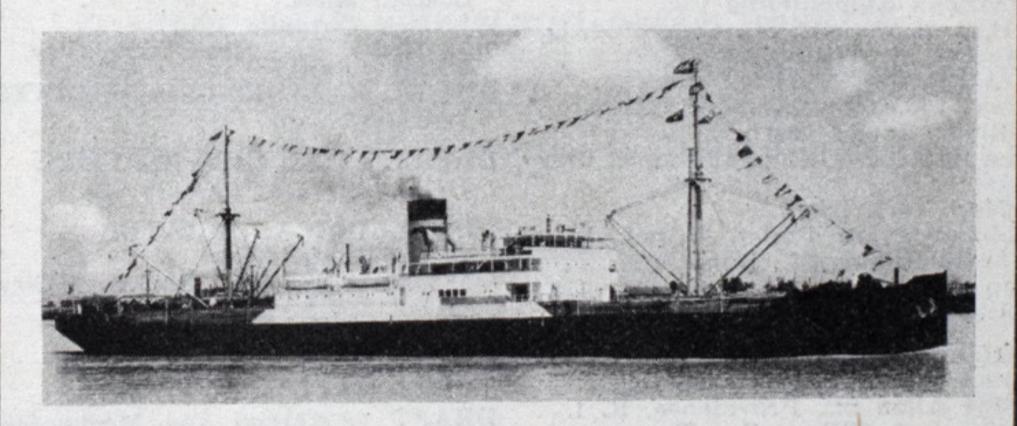
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HATCH COVERS (Steel) MacGregor & King, Ltd., 5 Lloyd's Ave., London, E.C.3, Eng.

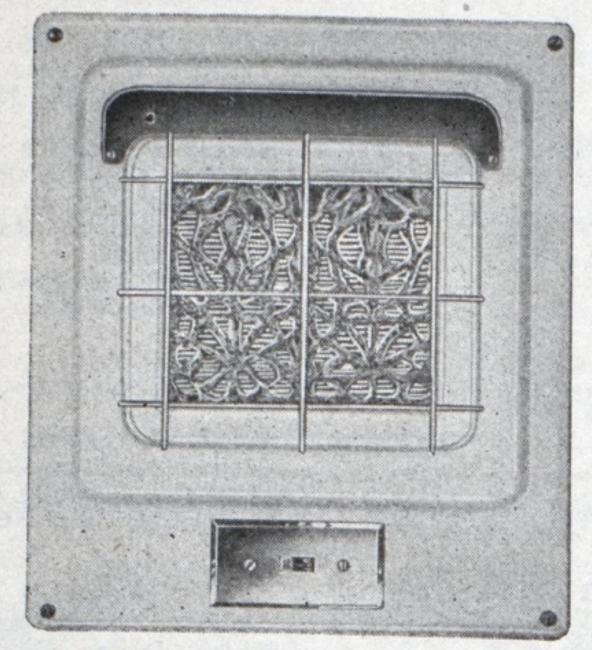
HAWSERS (Manila) Columbian Rope Co., Auburn, N. Y. Samson Cordage Works, Boston. Whitlock Cordage Co., 46 South St., New York City.

HEATERS (Electric) Superior Mfg. Co., The, Gr. gg St., Carnegie, Pa.

HEATERS AND PURIFIERS (Feed Water) Davis Engineering Co., 90 West St., New York City. Griscom-Russell Co., 285 Madison Ave., New York City. Westinghou e Electric & Mfg. Co., So. Philadelphia. Pa.

HEATING EQUIPMENT Westinghouse Electric & Mfg. Co., S. Philadelphia, Pa.

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Model 102A

Volts 110 Dimensions

Rating 1000 Watts

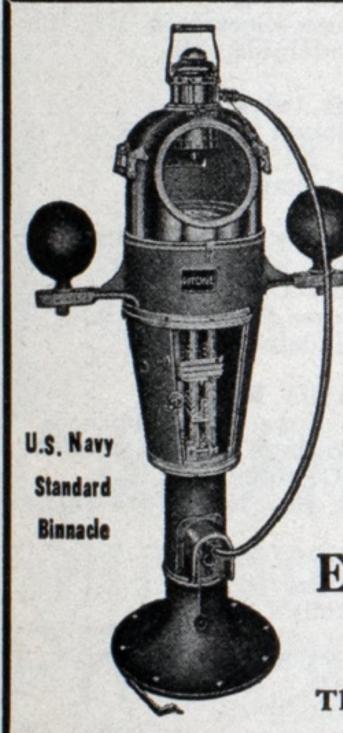
Frame: 14" Wide 16¼" High
Body: 11¾" Wide 11¾" High 4" Deep
Finishes—White, Ivory, Green and Orchid
Requires No. 12 Wire for connection.

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Add to the comfort of travel and increase traveling. Write for full details.

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The Standard Liquid Compass the world over.

Used Exclusively in U. S. Navy for over 40 years.

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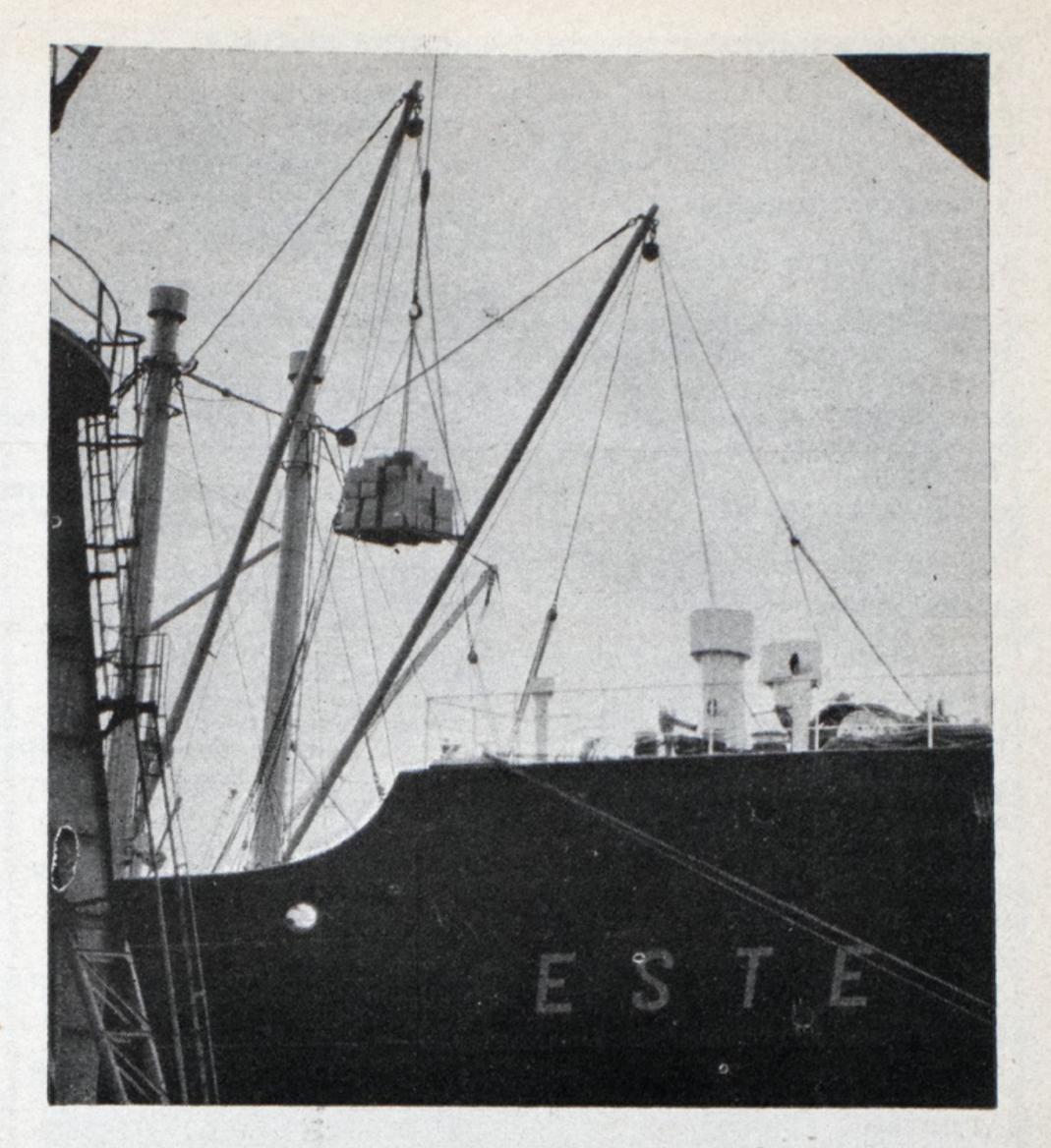
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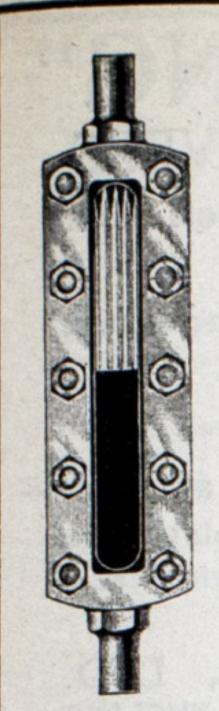
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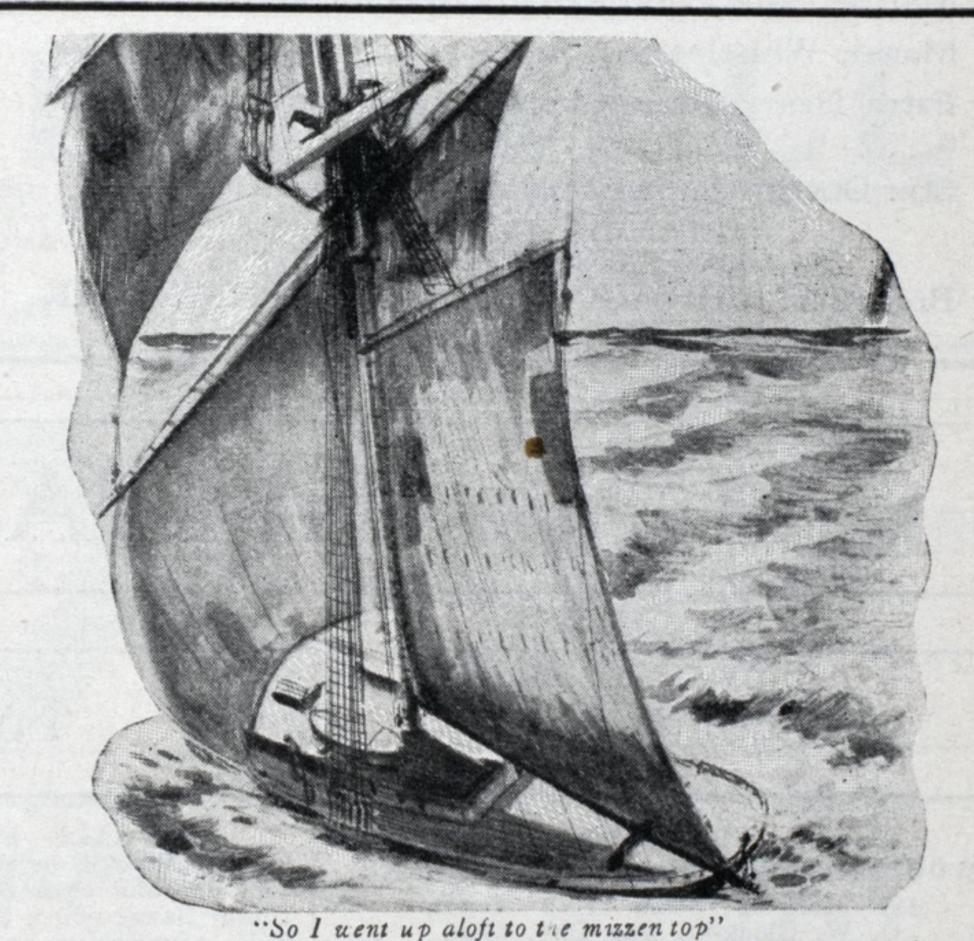
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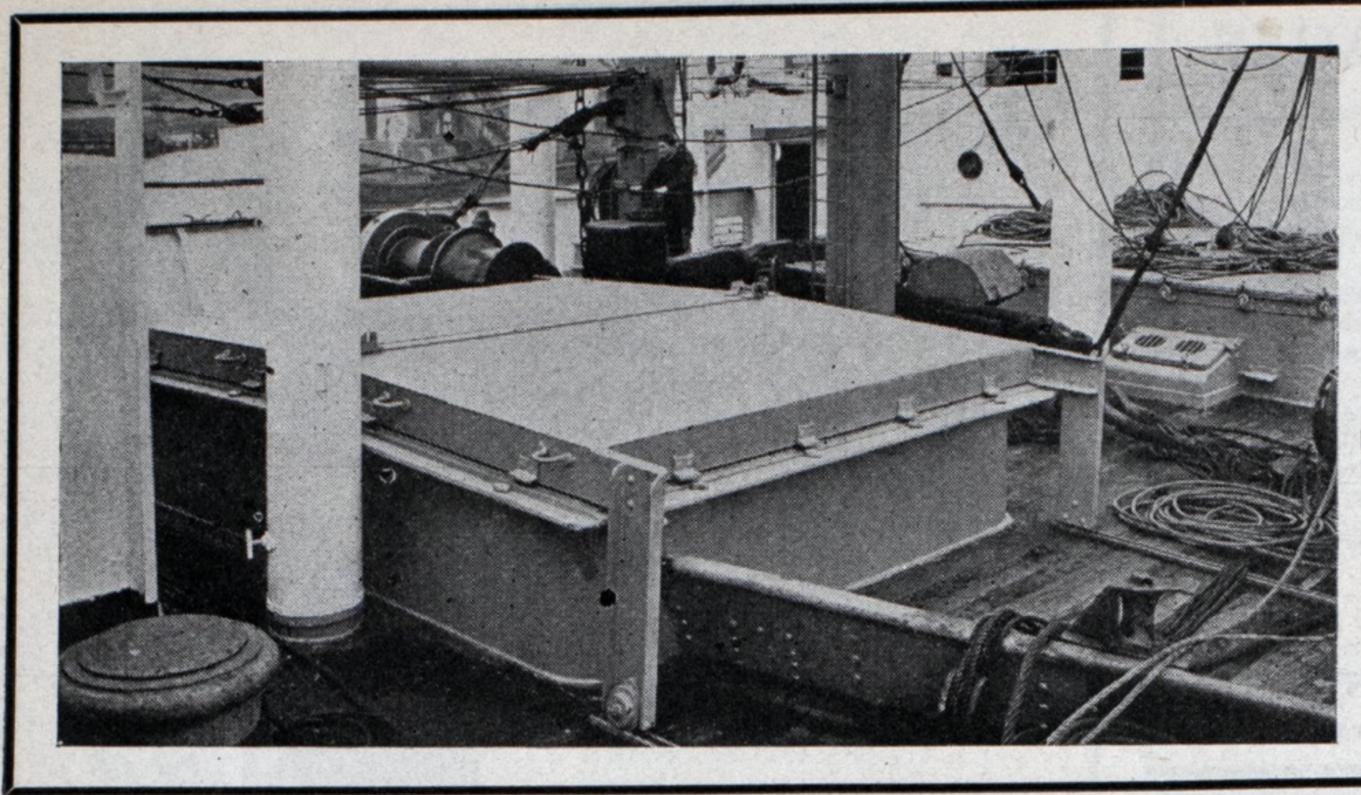
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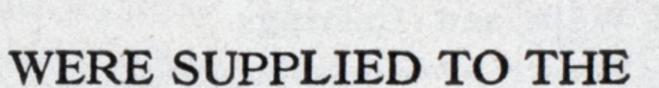
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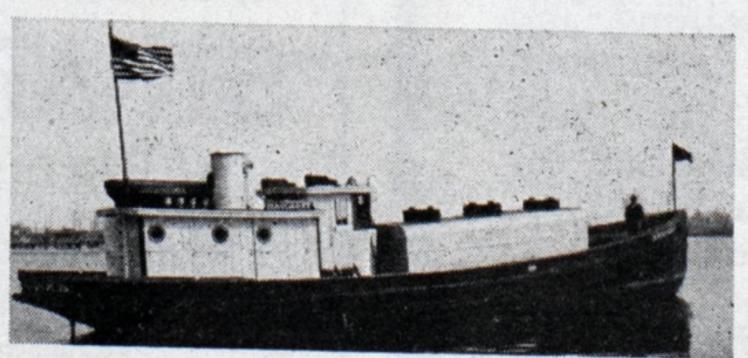
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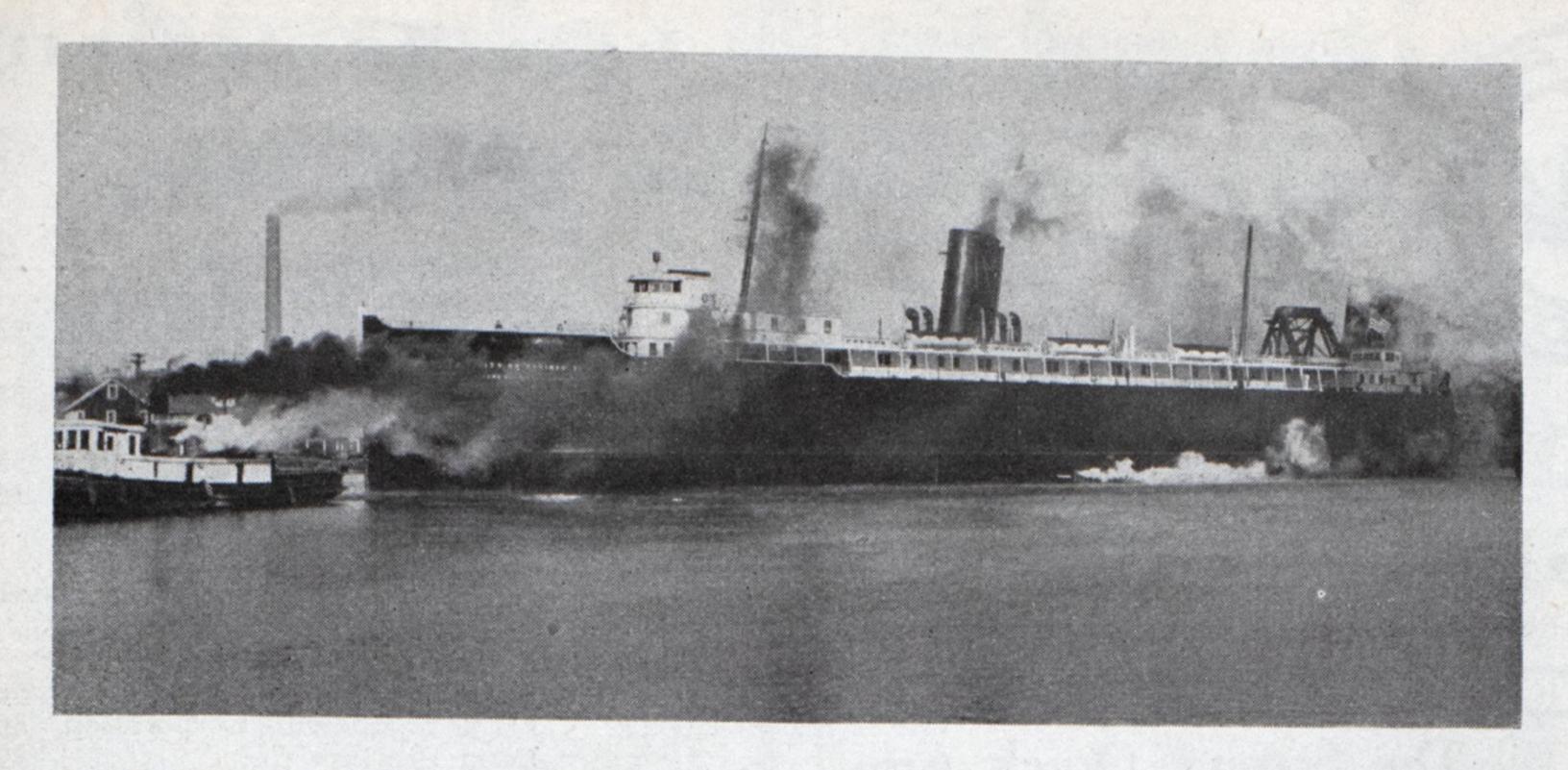
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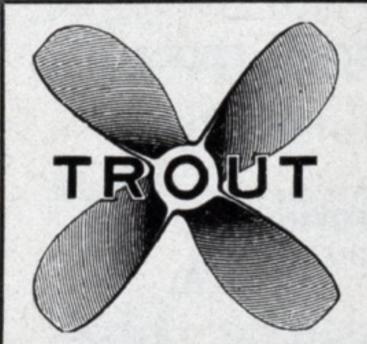
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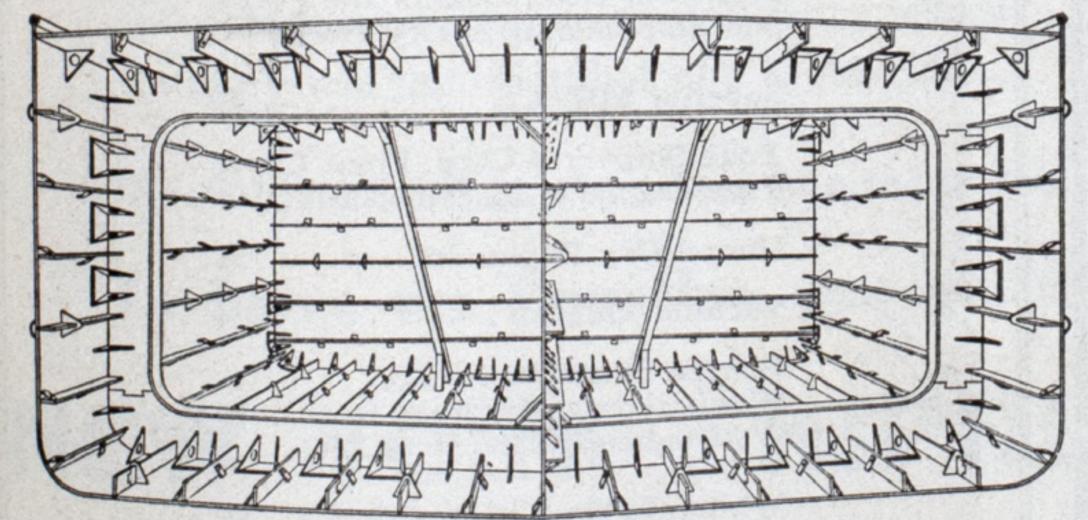
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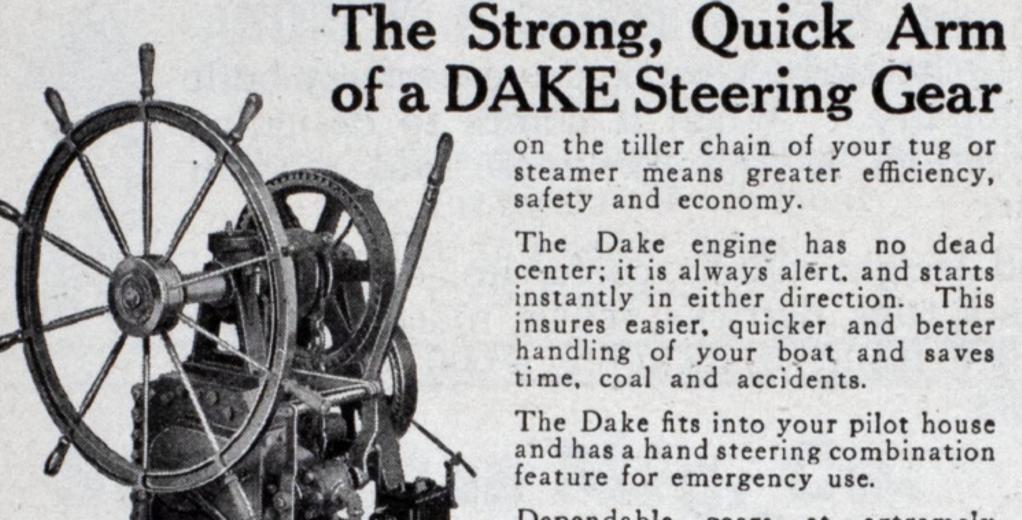
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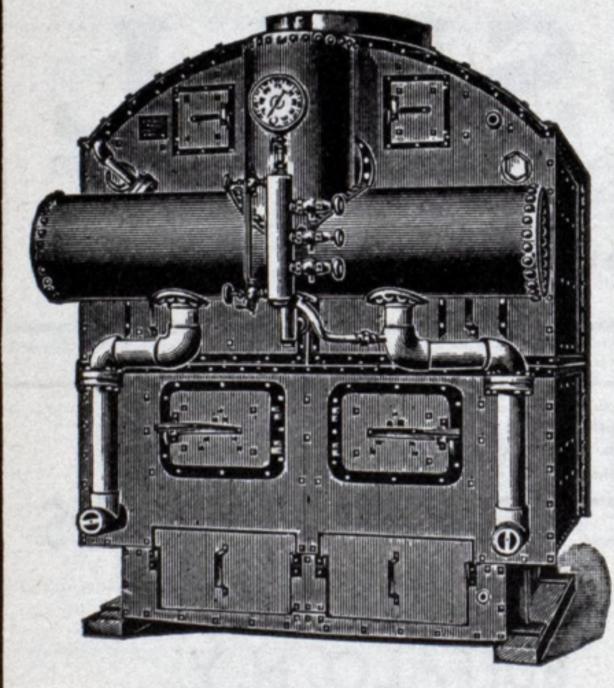
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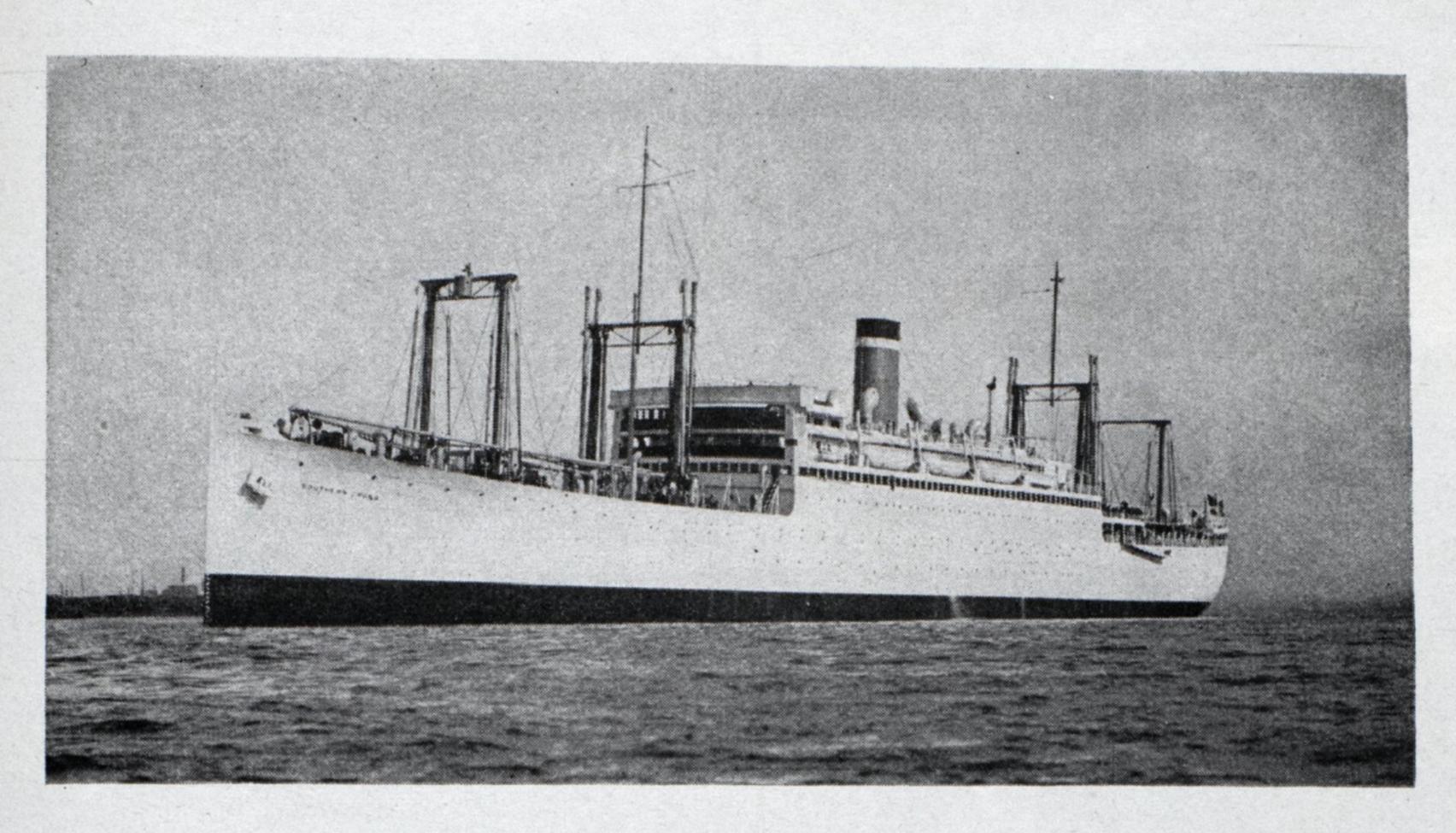
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Add—the stability, independence and reliability given our foreign shipping by American control.

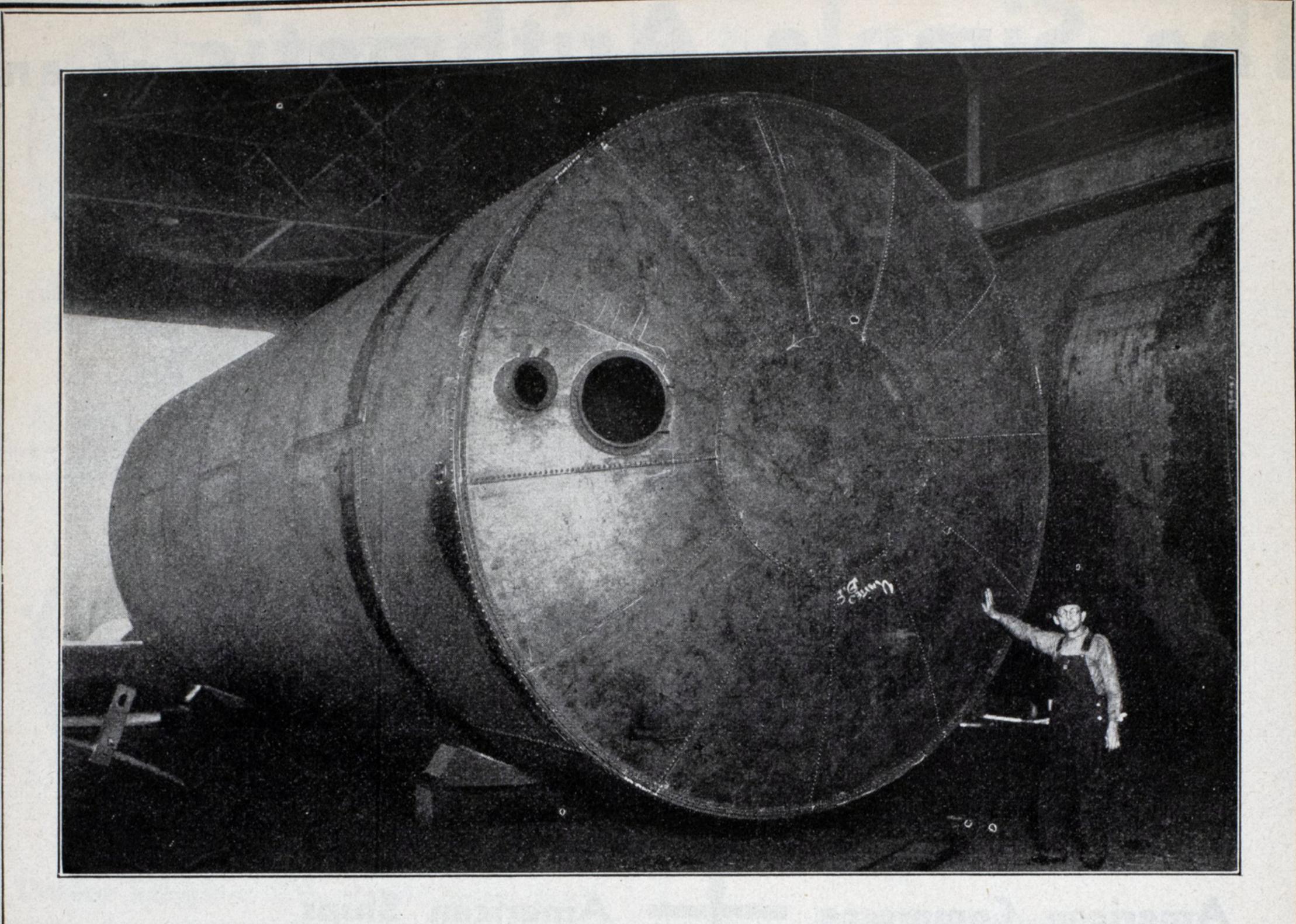
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# The Buyer of this 50,000 Gallon Tank Got 15,000 Gallons Free

In fact our customer, one of the great oil companies, bought five tanks (a quarter million gallons capacity) and thus saved the price of 75,000 gallons since the cost actually would have been 30 per cent more had these tanks been built by slow and costly hand methods in the field. Instead, they were produced in the largest and best equipped tank plant in metropolitan New York, where UNITED was able to build in one piece, handle as a unit, and ship on its own lighters, from its own docks.

These tanks, 15-ft. in diameter and 42-ft. long, are typical products of the UNITED Tank Division, though of rather uncommon size. In this mammoth tank plant at Arlington, Staten Island, there is every facility for manufacture, delivery and erection of metal plate work of every description, pressure or non-pressure, ferrous or non-ferrous. Boilers, Smoke Stacks, Coal Bunkers, Pipe of large diameter, Stills, Digestors, Evaporators, special Chemical Tanks with or without insulation and lined with rubber, nickel, copper or chrome steel.

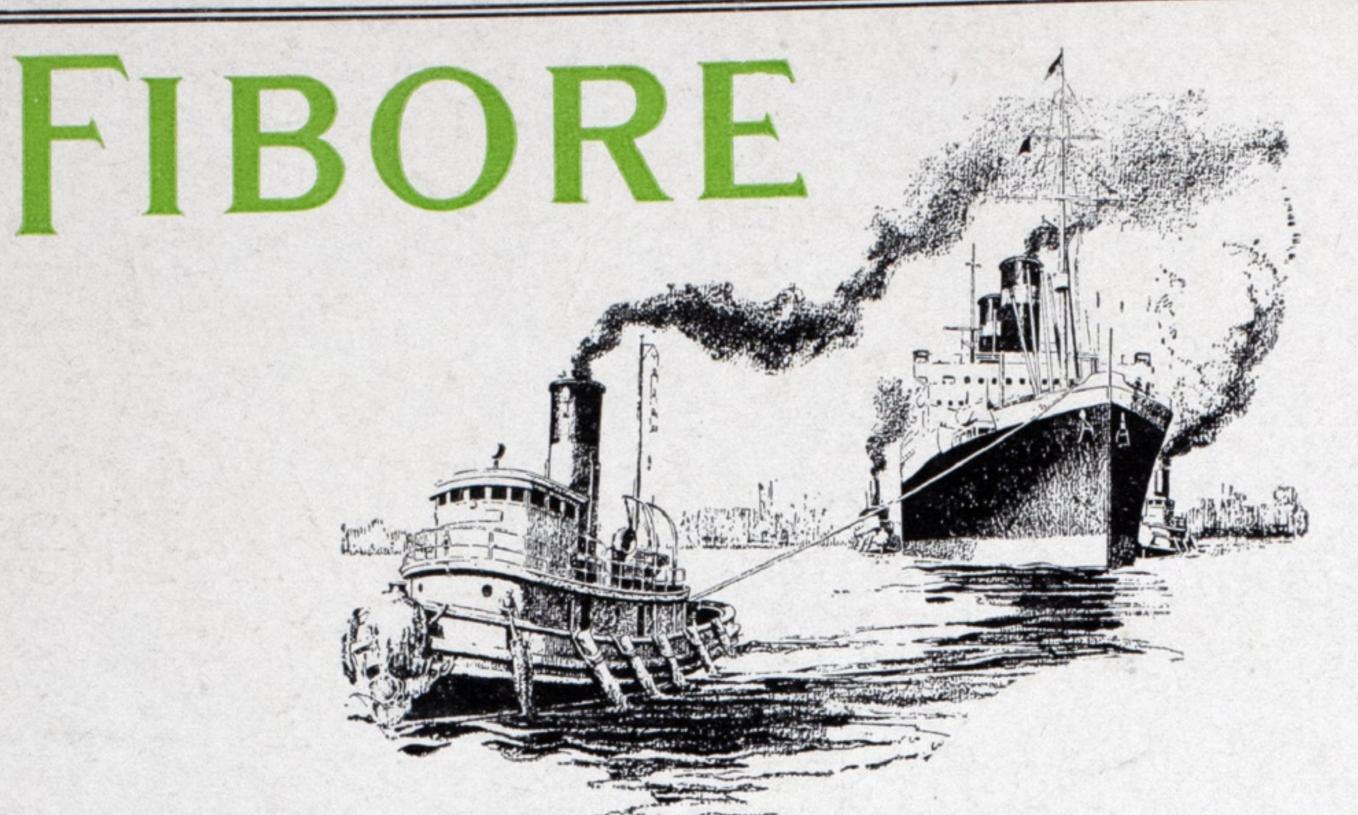
Main Office 11 Broadway, New York

#### UNITED DRY DOCKS

Tank Plant
Phone Pt. Richmond
7-3419 & 7-7389

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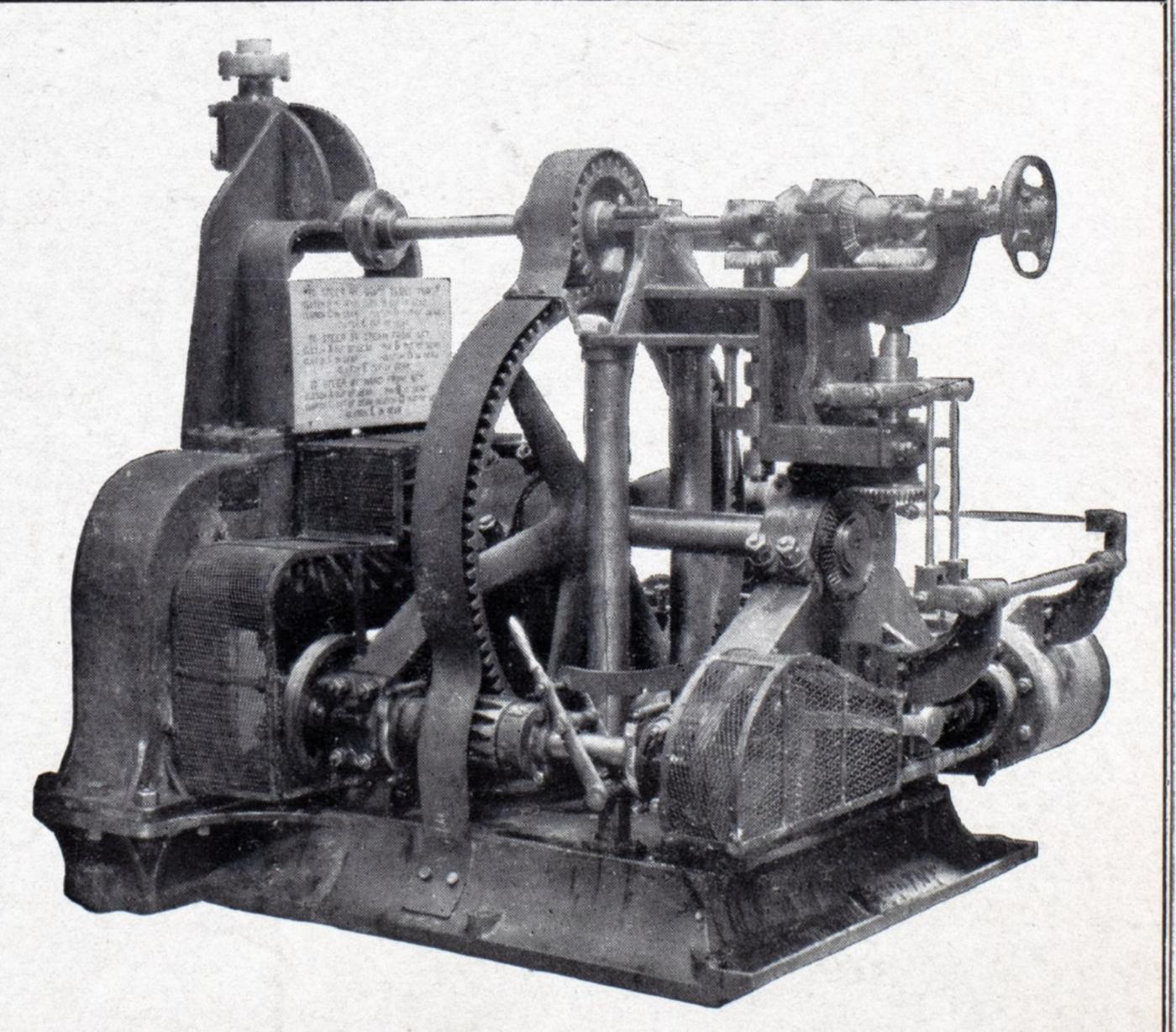
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